Revitalizing Auto Communities Environmental Response (RACER) Trust

2024 ANNUAL MONITORING REPORT

RACER Trust Lansing Industrial Land

Lansing, Michigan

June 12, 2025

2024 Annual Monitoring Report

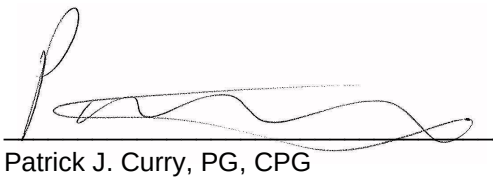
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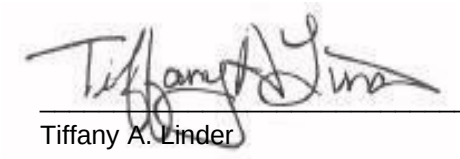
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Acronyms and Abbreviations

Annual Report	2024 Annual Groundwater Monitoring Report
APC Site	Former Adam's Plating Company Superfund Site
Arcadis	Arcadis of Michigan, LLC
bgs	below ground surface
COC	constituent of concern
CSM	Conceptual Site Model
DW criteria	Part 201 Residential Drinking Water Criteria
EGLE	Michigan Department of Environment, Great Lakes, and Energy
Eurofins	Eurofins Environment Testing North Central, LLC located in Barberton Ohio
FSP	Field Sampling Plan
ft	feet
ft/ft	foot per foot
GSI criteria	Groundwater-Surface Water Interface Criteria
IGMP	Interim Groundwater Monitoring Work Plan
LNAPL	light nonaqueous phase liquid
µg/L	microgram per liter
Merit	Merit Laboratories located in Lansing, Michigan
mg/L	milligram per liter
ng/L	nanogram per liter
NTU	nephelometric turbidity unit
Pace	Pace Analytical located in West Columbia, South Carolina
PFAS	per- and polyfluoroalkyl substances
PFBS	perfluorobutanesulfonic acid
PFHxA	perfluorohexanoic acid
PFHxS	perfluorohexanesulfonic acid
PFNA	perfluorononanoic acid
PFOA	perfluorooctanoic acid
PFOS	perfluorooctane sulfonic acid
QC	quality control
RACER	Revitalizing Auto Communities Environmental Response

RCRA	Resource Conservation and Recovery Act
RL	reporting limit
RRD	Remediation and Redevelopment Act
SIM	selected ion monitoring
Site	RACER Trust Plants 2, 3, and 6 located in Lansing, Michigan
SOP	Standard Operating Procedure
SVOC	semi-volatile organic compound
USEPA	United States Environmental Protection Agency
VAP	vertical aquifer profiling
VOC	volatile organic compound

1 Introduction

On behalf of the Revitalizing Auto Communities Environmental Response (RACER) Trust, Arcadis of Michigan, LLC (Arcadis) prepared this 2024 Annual Groundwater Monitoring Report (Annual Report) to support the Resource Conservation and Recovery Act (RCRA) Corrective Action process for RACER Trust Lansing Industrial Land, located in Lansing, Michigan (Site). The Site consists of former Plants 2, 3, and 6. This Annual Report summarizes groundwater monitoring completed between January and December 2024, consistent with the updated requirements of the *Revised – 2023 Interim Groundwater Monitoring Work Plan* (IGMP; Arcadis 2023a), which was approved by the Michigan Department of Environment, Great Lakes, and Energy (EGLE) on May 23, 2023. The storm sewer monitoring program, included as part of the 2023 IGMP, was approved by EGLE separately on January 26, 2023, and was implemented during 2024 events. The 2023 IGMP incorporated storm sewer monitoring, newly installed monitoring wells, and adjusted the number of wells, constituents, and frequency of sampling consistent with the evolving risk and regulatory requirements, as approved by EGLE.

The following sampling events were completed in accordance with the 2023 IGMP:

- First quarter 2024 - included a quarterly event completed between February 12 to 14, 2024. Groundwater samples were collected from a total of 30 wells.
- Second quarter 2024 - included the annual site-wide groundwater gauging event, with gauging of light nonaqueous phase liquid (LNAPL) wells and the annual, biennial, and quadrennial sampling events completed from May 13 through 24, 2024. Groundwater elevations were collected from a total of 220 monitoring wells, LNAPL gauging was completed at a total of 15 wells, and groundwater samples were collected from a total of 152 wells.
- Second quarter 2024 – also included collection of samples from 15 wells between April 8 to 10, 2024, concurrently with the United States Environmental Protection Agency's (USEPA) sampling for the Adams Plating site.
- Third quarter 2024 – A quarterly groundwater sampling and gauging event completed August 19 through August 21, 2024. Groundwater elevations were collected from a total of 26 monitoring wells and groundwater samples were collected from a total of 25 wells.
- Fourth quarter 2024 – Site-wide gauging, including LNAPL well gauging, was completed between November 11 through November 20, 2024, in addition the semi-annual groundwater sampling event. Annual sampling of Lansing Township municipal wells was also completed during the fourth quarter. Groundwater elevations were collected from a total of 210 monitoring wells (seven of which were LNAPL monitoring wells), and groundwater samples were collected from a total of 79 wells.
- Additionally, quarterly storm sewer sampling for PFAS was completed on February 8, April 10, July 2, and October 3.

As outlined in the 2023 IGMP, this Annual Report includes quarterly data (e.g., tabulated data, figures, analytical narrative) and the following information:

- Objective and scope of the sampling events
- Summary of groundwater elevations and LNAPL gauging data, including contour maps and trend plots
- Figures, tables, and a brief narrative summarizing the groundwater sampling results
- Groundwater elevation contour maps for various water bearing zones
- Updated groundwater plume stability evaluation

- Summary of Lansing Township water supply well sampling
- Conclusions and recommendations for revisions to the IGMP as appropriate.

All groundwater monitoring activities were completed in accordance with the 2023 IGMP. The sampling frequencies and analytes for each well in the 2023 IGMP are included in **Table 1**. The locations of all Site monitoring wells are provided on **Figures 1A**, **1B**, and **1C**.

The following deviations from the 2023 IGMP occurred during 2024 monitoring activities:

- **MW-03-08** was part of the 2023 IGMP perched groundwater elevation monitoring well network but was consistently inaccessible due to standing water. MW-03-08 had consistent non-detects with intermittent low-level detections of acetone and TCE and was proposed for abandonment in 2023. On December 6th, 2024, MW-03-08 was properly abandoned. A summary of abandonment activities can be found in the *2024 Monitoring Well and SSMP Abandonment Memo* (Arcadis 2025a).
- **MW-14-69** was dry during the second and fourth quarter 2024 and has been dry since installation in 2014. This monitoring well was installed in an area of Plant 6 with limited perched groundwater with the intent of verifying whether saturated conditions existed and if the well would produce enough water for sampling and is checked annually.
- **MW-18-96** was installed in shallow fill material at Plant 3 and contained water during development and initial sampling; however, the well has been dry since June 2020. No samples were collected at this location during second or fourth quarter 2024. The continued absence of groundwater at this well location suggests the clay in this area of the Site is a barrier to groundwater flow. This monitoring well was proposed for abandonment in communication submitted to EGLE on August 16, 2024, and at the time was not approved for abandonment. This well will be included for abandonment in a 2025 request.
- **MW-19-110** was installed in August 2019 at the request of the EGLE in an area of Plant 3 with limited perched groundwater with the intent of verifying whether saturated conditions existed and if the well would produce enough water for sampling. Since installation in 2019, the well has had either low water levels or been dry, resulting in no groundwater samples collected. No samples were able to be collected at this location during the second or fourth quarter 2024.
- **MW-19-113** was installed in August 2019 at the request of the EGLE in an area of Plant 3 with limited perched groundwater with the intent of verifying whether saturated conditions exist and if the well would produce enough water for sampling. Since installation in 2019, the well has had either very limited water or been dry, resulting in no groundwater samples collected. In second quarter 2024, enough water was present to collect a groundwater sample. However, in fourth quarter the well was dry, and no samples were collected.
- **MW-20-130** was installed in July 2020 on Plant 2 near the eastern property boundary to Plant 6 in the deep overburden and weathered bedrock. This well has previously been sampled for 1,4-dioxane and PFAS and was last sampled in October 2023. During the second quarter 2024 event, sampling of MW-20-130 was unsuccessful. When the tubing was pulled from the well it appeared to have a significant amount of iron precipitation present. Sampling of MW-20-130 was re-attempted during the fourth quarter 2024 and samples were successfully collected.
- **MW-21-135** was installed in March 2021 on Plant 6 near the eastern property boundary. This well has previously been sampled for PFAS and was last sampled in May 2024. During the fourth quarter event it was observed that MW-21-135 was damaged and the PVC casing was broken at the ground surface. The well was not sampled due to the potential sand pack entering the well at the broken connection. MW-21-135 was repaired on December 6, 2024 but will need to be re-developed before sampling again in 2025.

- **MW-22-159** was installed off-site to the east of Plant 6 and contained water during development, however, the well has been dry since December 2022. No samples were able to be collected at this location in 2024.
- **TW-14-06** was observed to be damaged in first quarter 2023 and was not sampled. Well TW-14-06 was part of the Biosparge system and had a damaged well seal that was affecting remedy performance. TW-14-06 was approved by EGLE for abandonment in early 2024 and was abandoned on February 2, 2024. TW-15-11 was used as a replacement well for TW-14-06 and will be used during future sampling events.

A revised monitoring plan was prepared for the Site and will be implemented in 2025. The *Revised Interim Monitoring Plan – 2025* was submitted to EGLE on April 18, 2025. Final approval from EGLE is pending. The 2025 Interim Monitoring Plan (IMP, Arcadis 2025c) includes an overall reduction in sampling frequency and reduced reporting but retains overall coverage consistent with the 2023 IGMP.

2 Sampling Methods

This section discusses the groundwater, soil vapor, and storm sewer sampling methodology used at the Site.

2.1 Groundwater Sampling Methods

All groundwater samples were collected in a manner consistent with the low-flow sampling techniques in the Arcadis Standard Operating Procedure (SOP) for low-flow sample collection, and generally consistent with EGLE's Remediation and Redevelopment Division (RRD) Op Memo 2, Attachment 5 (EGLE 2004). Samples collected for 1,4-dioxane, VOCs, SVOCs, metals, and general chemistry were submitted under chain of custody protocol to Merit Laboratories (Merit) located in East Lansing, Michigan. Samples collected for low-concentration 1,4-dioxane analysis were submitted under chain of custody protocol to Eurofins Laboratory in Barberton, Ohio. Samples collected for PFAS analyses were submitted under chain of custody protocol to Pace Analytical Laboratory located in West Columbia, South Carolina. Laboratory analytical reports and data validation reports for Lansing Township municipal wells and Site monitoring wells are included as **Appendix A** and **B-1**, respectively. Groundwater low-flow sampling logs are included as **Appendix C-1**.

During the second and fourth quarter 2024 semi-annual sampling events, and before sample collection, site-wide gauging was completed using electronic water level meters and LNAPL wells were gauged using an oil/water interface probe. During first and third quarter 2024 sampling events, gauging was limited to those wells selected for sampling. All gauging was completed within 24 hours with a few exceptions due to access or other issues.

The sampling matrix provided as part of the 2023 IGMP is included as **Table 1**. In general, groundwater samples were submitted for analysis for one or more of the following parameters:

- Target compound list (TCL) VOCs using USEPA Method SW8260B, Revision 2 or SW8260C, Revision 3.
- SVOCs using USEPA Method SW8270D, Revision 4.
- Select total and dissolved metals using USEPA Method 200.8, Revision 5.4. Hexavalent chromium was analyzed using USEPA Standard Method 3500 Cr B 2011.
- Low-concentration 1,4-dioxane using USEPA Drinking Water Method 522, which provides a reporting limit (RL) of 0.20 microgram per liter (µg/L) – used for the Lansing Township municipal wells and select bedrock monitoring wells.
- 1,4-Dioxane using USEPA Method SW8260B-SIM – used for monitoring wells other than municipal and bedrock wells.
- PFAS using USEPA Method 537 modified with isotope dilution (DoD QSM 5.3).

2.1.1 Quality Control/Quality Assurance

Quality control (QC) samples were collected during the sampling event and included the following:

- One duplicate sample per every ten samples.
- One matrix spike and matrix spike duplicate (MS/MSD) sample per every 20 samples.
- One field blank sample per sampler per sampling event.
- One equipment blank sample per pump per sampling event, as well as additional equipment blank samples from the water level meters used for PFAS sampling.

Additionally, trip blanks were included with each cooler containing samples for VOC analysis. One sample delivery group per plant from each quarter underwent complete Tier I validation as defined in USEPA *Innovative Approaches to Data Validation*, USEPA Region III (USEPA 1995). Groundwater sample validation reports are included in **Appendix A** and **B-1** along with laboratory analytical reports.

2.1.2 Light Nonaqueous Phase Liquid Monitoring

LNAPL monitoring wells were gauged during the second and fourth quarter events with an oil/water interface probe. Gauging methods were consistent with the 2023 IGMP. Additionally in 2024, eight LNAPL monitoring wells were abandoned on November 13, 2024, and LNAPL gauging will be discontinued going forward. Well abandonment activities are detailed in the *2024 Monitoring Well and SSMP Abandonment Memo* (Arcadis 2025a).

2.2 Soil Vapor Monitoring

Soil vapor monitoring point SVMP-20-01 is located near the Plant 6 entrance for the purpose of monitoring VOCs in soil vapor potentially associated with the low concentration vinyl chloride plume located in this area. Details regarding the vapor intrusion assessment for this area were included in the Plant 6 Vapor Intrusion Investigation Summary report (Arcadis 2022c).

Soil vapor monitoring point SVMP-20-01 was sampled on August 20, and November 20, 2024, for USEPA Method TO-15 analysis. No samples were collected during first and second quarters due to saturation within the sample point. Soil gas laboratory analytical reports are provided in **Appendix B-2** and sampling logs are provided in **Appendix C-2**. The location of SVMP-20-01 is included on **Figure 1B**. A helium leak test was performed prior to each sampling event and the soil gas samples were collected in a laboratory-provided Bottle Vac and submitted to Metiri Group (formerly Fibertec Analytical Laboratory) in Holt, Michigan for analysis.

2.3 Groundwater Elevation Monitoring

Monitoring wells were gauged during sampling using an electronic water level meter generally within a 24-hour period. To evaluate seasonality, site-wide gauging was previously rotated annually between the second quarter and fourth quarter events. However, beginning in 2023 and continuing in 2024, site-wide gauging was completed during second and fourth quarter semi-annual sampling events. During the first and third quarter sampling events, gauging was limited to those wells selected for sampling. Gauging methods were consistent with the 2023 IGMP.

2.4 Storm Sewer Sampling Methods

Storm sewer sampling was completed quarterly to confirm the effectiveness of storm sewer modifications and abandonments completed in Fall 2018, Winter 2019/2020, Fall 2020, Spring 2021 (Arcadis 2021c), Fall 2023, and Fall 2024. Fall 2023 and Fall 2024 storm sewer modifications were performed in order to promote Site drainage, including abandoning manhole structures and installing a new catch basin structure on Plants 2 and 3. Storm sewer sampling was completed prior to storm sewer modifications and abandonments in 2017 at Plant 2, and in on Plants 2 and 6 in 2019. Storm sewer samples required for quarterly monitoring are collected from the sump of the structure. Past samples collected for investigation purposes were collected from sumps and individual inverts as needed. Samples are collected according to the Arcadis Technical Guidance Instruction (TGI) for PFAS sample collection and analyzed using USEPA Method 537 modified with isotope dilution (DoD QSM 5.3).

3 Results

This section summarizes results from sampling activities completed between January and December 2024. **Table 2** presents groundwater analytical data collected during the reporting period. As a frame of reference and not indicating the criteria are applicable or that additional response is necessary, figures showing exceedances of EGLE Part 201 residential drinking water criteria (DW criteria) and Part 201 groundwater surface water interface criteria (GSI criteria), are provided as **Figures 2** through **9**. Laboratory analytical reports and data validation reports for Lansing Township municipal wells and all other monitoring wells are included as **Appendix A** and **B-1**, respectively, soil gas laboratory analytical reports are provided in **Appendix B-2**, and storm sewer laboratory analytical reports are provided in **Appendix B-3**. Groundwater low-flow sampling logs and soil vapor sampling logs are included as **Appendix C-1** and **Appendix C-2**, respectively.

3.1 Groundwater Monitoring Results

A summary table of the groundwater analytical data collected during 2024 is presented in **Table 2** with exceedances of DW criteria and GSI criteria, if applicable, highlighted in gray and summarized on **Figures 2** through **9**. Results of the 2024 groundwater monitoring events are summarized below.

3.1.1 Perched 1,4-Dioxane Results

In accordance with the approved 2023 IGMP Table (**Table 1**), sampling of perched groundwater for 1,4-dioxane was completed as part of the annual groundwater sampling event during second quarter 2024 and quarterly at the western property boundary of Plant 2 as part of investigations described below. Perched 1,4-dioxane results (**Figure 2**) are generally consistent with the results summarized in the 2023 Annual Groundwater Monitoring Report (Arcadis 2024b), some exceptions include:

- Monitoring well MW-14-58R is a perched monitoring well located near the western property boundary of Plant 2 and was installed in October 2021 as a replacement for MW-14-58 which was damaged and subsequently abandoned. MW-14-58 was last sampled in June 2020 and had a 1,4-dioxane concentration of 38 µg/L. MW-14-58R was installed 5 to 6 feet north of MW-14-58 within similar geology and screened interval, and first sampled in December 2021, showing a 1,4-dioxane concentration of 430 µg/L. Continued sampling of MW-14-58R in second and fourth quarter 2024 has shown 1,4-dioxane concentrations of 280 and 220 µg/L, respectively.

Monitoring well MW-22-157 is a perched monitoring well located off-site, west of MW-14-58R, in the west right-of-way of Rosemary Avenue. Concentrations have been above DW Criteria in 2023 and 2024 but decreasing from 123 µg/L in August 2023 to 41 µg/L in November 2024.

Additional evaluation of 1,4-dioxane in the MW-14-58R were provided in the *MW-14-58R Area September 2023 Investigation Summary* submittal on January 19, 2024 (Arcadis 2024a). In November 2024, RACER Trust collaborated with USEPA and EGLE to collect synoptic groundwater elevation and groundwater analytical data for the western portion of RACER Plant 2 and the APC site. A summary of additional off-site 1,4-dioxane data was provided by the USEPA and is included as an attachment to the *Data Review and Summary Related to Potential Off-Site Vapor Intrusion from the RACER Area 4/MW-14-58R RACER Trust, Plant 2* memo submittal on March 14, 2025 (Arcadis 2025b). Groundwater sampling for 1,4-dioxane in this area was incorporated into the 2025 IMP. Sampling at MW-22-153, MW-22-155, MW-22-156, MW-22-157, MW-23-161, MW-23-162, and MW-23-163 will be completed semi-annually, and MW-14-58R will be completed annually.

3.1.2 Lower 1,4-Dioxane Results

A biosparge remedy has been implemented per the *Interim Measures Work Plan: Lower 1,4-Dioxane Biosparge* work plan (Arcadis 2018). The lower 1,4-dioxane (i.e., weathered bedrock) biosparge system has been operating at Plant 3 since May 2019 and Plant 2 since August 2020. Performance monitoring of the biosparge system is summarized in the *Lower 1,4-Dioxane Biosparge Update Report* (Arcadis 2025d) most recently submitted in April 2025, and in the *Lower 1,4-Dioxane Biosparge Progress Report and Shutdown Evaluation* (Arcadis 2023c), submitted to EGLE on March 27, 2023. Lower 1,4-dioxane concentrations (**Figure 3**) have been generally decreasing throughout the footprint of the plume since the biosparge treatment system began operation. The results at the perimeter of the lower 1,4-dioxane plume were reviewed for potential changes:

- *Southern Extent (the toe)*: The lower 1,4-dioxane plume is defined to the south by MW-16-74, MW-16-75, MW-16-77, MW-16-78, MW-19-121, MW-21-140, and MW-21-141. These results suggest no significant expansion has occurred at the southern toe of the lower 1,4-dioxane plume since 2018. Future migration to the southeast is not expected due to the operation of the biosparge system and geologic conditions described as part of the *Lower 1,4-Dioxane Conceptual Site Model* (Arcadis 2021a).
- *Northeast Lobe (on Plant 2)*: Increasing concentrations were observed within the northeast lobe of the lower 1,4-dioxane plume on Plant 2 from 2018-2021. Since then, stable to decreasing concentrations have been observed (e.g., at wells MW-16-84 and MW-17-86), likely attributable to the operation of the biosparge system (Arcadis 2021c, 2023b). Concentrations at MW-16-85 decreased during the fourth quarter 2024 event and will continue to be monitored on a semi-annual basis. See Section 4.2.1 for more information.
- *MW-20-130*: Monitoring well MW-20-130 is a weathered bedrock monitoring well that was installed as a deep sentinel for PFAS at the Plant 2 PFAS source area. MW-20-130 has a 1,4-dioxane concentration of 170 µg/L during the fourth quarter 2024. Two weathered bedrock monitoring wells were installed downgradient of MW-20-130, one to the south (MW-21-140) and one to the east (MW-21-141), and 1,4-dioxane has not been detected at either well since they were installed in 2021.
- Monitoring wells MW-16-80 and MW-14-56 located near the western Plant 2 property boundary in weathered bedrock, showed a 1,4-dioxane concentration exceeding the DW criterion of 7.2 µg/L in 2024. The detected concentration was generally consistent with previous results observed at these locations. As previously reported, detections of 1,4-dioxane in the weathered bedrock at the western property boundary could be associated with other off-site source areas.

3.1.3 Municipal Well and Bedrock Monitoring Well Sampling Results

The results of the Lansing Township well sampling indicate 1,4-dioxane concentrations of 0.12J µg/L in Lansing Township well TWP-90-03, 0.35 µg/L in TWP-90-04 and 0.43 µg/L in TWP-90-05 (**Appendix A**). These concentrations are consistent with those detected in October 2023 (<0.20 µg/L in TWP-90-03, 0.24 µg/L in TWP-90-04, and 0.36 µg/L at TWP-90-05) and in previous years. The locations of the municipal wells are shown and the bedrock 1,4-dioxane results are summarized on **Figure 4.**

Analytical results for the municipal wells are included in **Table 2**. Widespread 1,4-dioxane detections in bedrock are potentially related to a 1,4-dioxane "background condition" in and around Lansing, as demonstrated by the low-level 1,4-dioxane sampling completed at the Site in 2017. Sporadic detections of 1,4-dioxane in the bedrock monitoring wells installed along the core of the plume ranged from 0.11 µg/L to 4.0 µg/L and did not exceed DW Criteria in 2024. 1,4-Dioxane trends graphs for the on-site bedrock monitoring wells are included as **Appendix D.** The sampling of Lansing Township wells will continue annually as part of the 2025 IMP.

3.1.4 Other VOC Results

Of the fifty-one (51) wells that were sampled for VOCs during 2024, four (4) wells had concentrations exceeding the DW and/or GSI criteria (**Figure 5**).

- *Plant 6 entrance at the intersection of Stanley and Osborn Streets*: A vapor intrusion investigation was completed in this area and a summary of the VI evaluation was provided to EGLE in June 2022 (Arcadis 2022c). An additional monitoring well was installed in September 2022 (MW-22-154) to the northeast of MW-20-132 to define the extent of SSVIAC exceedances in groundwater. Analytical results from MW-22-154 in 2024 showed vinyl chloride ranging from non-detect (<1 µg/L) during the first and second quarter, 2 µg/L in the third quarter and non-detect again in fourth quarter. Soil vapor sampling at SVMP-20-01, located between the Plant 6 entrance and the residential properties, has not detected vinyl chloride. The soil vapor results are included as **Table 3** and the location of SVMP-20-01 is included on **Figure 1B**. Soil vapor results are discussed further in Section 3.3. Based on the 2025 IMP, monitoring for VOCs in soil vapor at SVMP-20-1 and groundwater at MW-22-154 will continue semi-annually, with MW-20-131 and MW-20-132 sampled annually.
- *Weathered bedrock wells MW-14-61, MW-17-86, and MW-19-120*: Located in the northeast lobe of the lower 1,4-dioxane plume on Plant 2. Previously, low detections were observed of chlorinated VOCs (e.g., 1,2-DCE; chloroethane) related to leakage from the perched zone. VOCs were not detected in MW-14-61, MW-17-86, MW-19-120 in 2024. VOCs will continue to be monitored annually or biennially (MW-17-86) at these locations in accordance with the 2025 IMP.
- *Plant 2 perched monitoring wells in the MW-14-58R Area*: MW-22-156 and MW-22-153 and other MW-14-58R Area wells, located on the western property boundary of Plant 2, were sampled for VOCs in second, third and fourth quarter in accordance with the 2023 IGMP as part of an ongoing investigation of VOC impacts at the property boundary. A summary of the investigation was provided in the *MW-14-58R Area September 2023 Investigation Summary* (Arcadis 2024) and *Data Review and Summary Related to Potential Off-site Vapor Intrusion from the RACER Area 4/MW-14-158R* (Arcadis 2025b). The VOC results for MW-22-156 exceed DW criteria for 1,1-dichloroethene (1,1-DCE) and include detections of 1,1-dichloroethane (1,1-DCA), chloroethane and vinyl chloride. MW-22-153 included detections of 1,1-DCA and 1,1-DCE. Monitoring well MW-22-157, located off-site and downgradient of MW-22-156 and MW-22-153, has not had any detections of VOCs (other than 1,4-dioxane). At both MW-22-156 and MW-22-153, 1,1-DCA exceeds the residential SSVIAC, but are delineated offsite by MW-22-157. A summary figure illustrating the VOC and VI evaluation

for this area, including the VOC data for the off-site APC wells, is provided as **Appendix E**. These wells will continue to be monitored for VOCs semi-annual according to the 2025 IMP.

- *MW-14-54:* Monitoring wells MW-14-54 located in the former waste storage area near the western boundary of Plant 2 is sampled for VOCs at a biennial frequency and had similar results in 2024 as in 2022. MW-14-54 exceeded DW or GSI criteria for 1,2,4-trimethylbenzene, benzene, ethylbenzene, naphthalene, and total xylenes.

3.1.5 SVOCs Results

In accordance with the approved 2023 IGMP Table (**Table 1**), the quadrennial analysis of SVOCs was completed during the second quarter of 2024. Of the twelve (12) wells that were sampled for SVOCs during 2024, none of the wells had concentrations exceeding the DW and/or GSI criteria. SVOCs will continue to be monitored on a quadrennial basis as part of the 2025 IMP.

3.1.6 Metals Results

Metals including arsenic, chromium III, chromium VI, lead, nickel and vanadium exceeded DW Criteria in four monitoring wells on Plant 3 and two monitoring wells on Plant 6 as part of the quadrennial sampling event in 2024 (**Figure 6**).

- *CH-14-RO*: Chromium III and chromium VI were detected in this shallow well at concentrations of 8.75 milligrams per liter (mg/L) and 8.35 mg/L, respectively, exceeding the DW criteria of 0.10 mg/L for both compounds and GSI criterion of 0.16 mg/L and 0.011 mg/L for chromium III and chromium VI, respectively. Chromium concentrations at CH-14-RO are related to the former plating line and have been steadily decreasing since monitoring began in 2011.
- *MW-13-32*: Nickel was detected in the shallow well MW-13-32, located near the eastern boundary of Plant 3, at a concentration of 0.4 mg/L, exceeding the DW criterion of 0.1 mg/L and GSI criterion of 0.12 mg/L. As previously discussed, nickel in this area appears to migrate onto the RACER property from the adjacent railroad easement. Nickel concentrations at MW-13-32 have been steadily decreasing since monitoring began in 2013.
- *MW-02-04(3)*: Arsenic, total and dissolved, were detected in the deep overburden well MW-02-04(3), located in central Plant 3, at concentrations of 0.083 mg/L and 0.014 mg/L, respectively, exceeding the DW criteria of 0.01 mg/L. Lead was detected at 0.005 mg/L, exceeding the DW criteria of 0.004 mg/L, and vanadium was detected at 0.009 mg/L exceeding the DW criteria of 0.0045 mg/L.
- *MW-91-2R*: Arsenic was detected in the deep overburden well MW-91-2R, located in central Plant 3, at a concentration of 0.011 mg/L, exceeding the DW criteria of 0.01 mg/L.
- *MW-13-36R*: Vanadium was detected in a shallow well, MW-13-36R, located on Plant 6, at a concentration of 0.008 mg/L, exceeding the DW criteria of 0.0045 mg/L.
- *MWBP*-10-UST5-6: Arsenic was detected in the shallow well MWBP-10-UST5-6, located in Plant 6, at a concentration of 0.044 mg/L, exceeding the DW criteria of 0.01 mg/L.

With few exceptions, exceedances of metals are low and consistent with previous sampling events. An evaluation of metals stability in groundwater (Arcadis 2014b), and subsequent monitoring, indicates that metals at the Site are stable and related to site geochemistry and reducing conditions created by the presence of VOCs, LNAPL or other naturally occurring organic material. Mobilization of metals is reversible, and iron and manganese-associated metals are immobilized when exposed to more oxidizing conditions away from the Site resulting in a reduction in groundwater concentration through precipitation and sorption. Monitoring for metals will continue at the perimeter of the Site on a quadrennial basis.

3.1.7 PFAS Results

The following sections discuss the PFAS groundwater results at the Site. PFAS will continue to be monitored annually according to the 2025 IMP.

3.1.7.1 PFOS Results

Perfluorooctane sulfonic acid (PFOS) concentrations exceeded the GSI criteria (12 nanograms per liter [ng/L]) and DW Criteria (16 ng/l) at 19 monitoring wells in 2024 (**Figure 7**).

- *MW-18-98*: Located on the northern portion of Plant 3, this perched well contained concentrations of PFOS between 77 ng/L to 140 ng/L in 2024, exceeding the DW and GSI criteria. Further north, the perched well MW-19-113 is screened in a similar depth interval and had a low-level PFOS detection of 3.5 ng/L in 2024 suggesting no further migration.
- *MW-18-99*: Located on the northwestern portion of Plant 3, this perched well contained concentrations of PFOS between 47 ng/L to 75 ng/L in 2024, exceeding the DW and GSI criteria. Further north, the perched well MW-19-112 is screened in a similar depth interval and was non-detect in second quarter 2024 suggesting no further migration.
- *Eastern Plant 3 and off-site wells*: Perched monitoring wells at the Plant 3 perimeter indicated PFOS concentrations of 220 and 310 ng/L at MW-18-88, and 42 to 56 ng/L at MW-18-95. PFOS did not exceed the DW and GSI criteria at any of the five perched monitoring wells installed in the City of Lansing's Dunnebacke and Westside Parks, located east of Plant 3.
- *MW-12-12, MW-13-36R, and MW-20-132*: Located along the northern and eastern boundary of Plant 6, these wells contained concentrations of PFOS that exceed the DW and GSI criteria. However, PFOS detections did not exceed DW criteria at the vertical aquifer profiling (VAP) or off-site monitoring wells completed east of Plant 6 to delineate PFAS impacts.
- *MW-22-145*: Located southeast of Plant 6, MW-22-145 is the only off-site well to exceed DW and GSI criteria for PFOS in 2024, ranging from 14 to 18 ng/L. MW-22-145 is delineated downgradient by MW-22-159 and MW-22-158.

3.1.7.2 PFOA Results

Perfluorooctanoic acid (PFOA) concentrations exceeded the DW Criterion of 8 ng/L at 30 perched monitoring wells in 2024 (**Figure 8**).

- *Eastern Plant 3 and off-site wells*: MW-18-88 located along the eastern boundary of Plant 3 contained PFOA concentrations of 7.4 to 9.7 ng/L in 2024. MW-18-93 previously had exceeded DW criteria in 2023 but was non-detect in 2024. Additionally, PFOA did not exceed the DW criteria for PFOA at any of the five perched sentinel monitoring wells installed in the City of Lansing's Dunnebacke and Westside Parks.

- *Plant 6 Perimeter Wells*: Perched monitoring wells located along the northeastern, eastern and southeastern boundaries of Plant 6 and off-site, contained concentrations of PFOA that exceeded the DW criteria for PFOA. Additional off-site work completed in 2022 included the installation of off-site monitoring wells to define the extent of PFOA in groundwater. MW-22-151, located northeast of Plant 6, increased in concentration through 2024 with a concentration of 15 ng/L PFOA detected during the fourth quarter. Off-site PFAS concentrations will continue to be monitored to further evaluate concentration trends and stability.
- *MW-12-09, MW-14-56 and MW-14-58R*: Monitoring wells located near the western boundary of Plant 2 contained PFOA ranging from 8.2 to 19 ng/L, exceeding the PFOA DW Criteria. There is the potential that PFAS concentrations near the Plant 2 boundary and within the Rosemary right-of-way could be combined with impacts associated with other potential off-site sources.

3.1.7.3 PFNA Results

Perfluorononanoic acid (PFNA) concentrations exceeded the DW criterion value of 6 ng/L at six perched monitoring wells in 2024 (**Figure 9**). The highest concentration of PFNA was 81 ng/L observed in Plant 6 source area well P6-SB-07. Other exceedances ranged from 3.9 ng/L to 23 ng/L. Exceedances near the eastern property boundary of Plant 6 are delineated by downgradient wells.

3.1.7.4 Other PFAS Compounds

Other PFAS compounds that exceed DW and/or GSI criteria included the following:

- *Perfluorohexanesulfonic acid (PFHxS):* The only detections of that exceed the PFHxS DW criteria (51 ng/L) in 2024 were perched well MW-21-139 (240 to 410 ng/L) in in the Plant 2 PFAS source area, CH-14-RO (1,900 ng/L) in Plant 3 source area , and well MW-18-103 (63 ng/L) located along the northern boundary of Dunneback Park east of Plant 3. The PFHxS detected at MW-18-103 appears to be isolated and may be related to an off-site source to the north where large quantities of roofing shingles are shredded and piled on the ground surface.
- *Perfluorobutanesulfonic acid (PFBS) and perfluorohexanoic acid (PFHxA):* Sporadic low detections of PFBS and PFHxA were observed in monitoring wells during 2024 but are below the DW criteria values of 420 ng/L and 400,000 ng/L, respectively.
- In addition to PFOS, PFOA, PFNA, PFHxS, PFBS, and PFHxA, other PFAS compounds have been detected at the Site, however there are no established criteria for comparison. In general, these concentrations appear to correlate to PFOS and PFOA concentrations and decrease with distance from PFOS and PFOA source areas.

3.1.7.5 Storm Sewer Analytical Results

Storm sewer PFAS analytical results from 2024 are summarized on **Tables 4** through **6** with exceedances of Rule 57 criteria highlighted in gray. 2024 data is also summarized on **Figures 10** through **12**. Results of the 2024 sampling events are summarized below.

- P2-MH-2 exceeded the Rule 57 criteria for PFOS of 12.0 ng/L during third quarter 2024 and fourth quarter 2024 with detections of 19.0 ng/L and 14.8 ng/L, respectively. No other outfall exceedances were noted on Plant 2 in 2024.
- P3-MH-284 exceeded the Rule 57 criteria for PFOS during fourth quarter 2024 with a detection of 26.4 ng/L. No other outfall exceedances occurred on Plant 3 in 2024.

- Osborn-MH-1 at Plant 6 exceeded Rule 57 criteria for PFOS during first, second, third, and fourth quarters of 2024 with concentrations of 16.0 ng/L, 17.0 ng/L, 16.0 ng/L, and 12.6 ng/L, respectively.
- Flow was not observed at outfall P3-MH-NE at the northeast corner of Plant 3 downgradient of the bulkheads.
- Relative flow measurements are noted at each storm sewer monitoring location. These measurements, noted as “trickle”, “little” or “moderate” flow, are highlighted on **Figures 10** through **12** for fourth quarter 2025.

3.2 Light Nonaqueous Phase Liquid Monitoring

LNAPL is present in the central portion of Plant 2 and in the north-central portion of Plant 3. LNAPL monitoring well locations and approximate extent of LNAPL are presented on **Figures 1A** and **1C**. LNAPL thicknesses were generally consistent with previous observations and are provided in **Table 7**. LNAPL trend graphs are included in **Appendix F**. The trend graphs indicate that, when present, LNAPL thickness gradually increases until it reaches equilibrium within the well and then stabilizes. For the deeper LNAPL, wells take longer to equilibrate with the confined LNAPL conditions relative to the static water level within the formation. The comprehensive *Plant 2 LNAPL Conceptual Site Model* was provided to EGLE for review on February 20, 2020 (Arcadis 2020). Based on the monitoring results, there is no indication of LNAPL migration. The LNAPL monitoring wells that have displayed consistent thicknesses of LNAPL were abandoned as part of 2024 well abandonment scope of work approved by EGLE. LNAPL monitoring will not be carried forward as part of the 2025 IMP.

3.3 Soil Vapor Monitoring

Soil vapor sampling at SVMP-20-01 near the Plant 6 entrance does not exceed the site-specific vapor intrusion criteria (SSVIAC). The results of the soil gas samples were non-detect for all results in the third and fourth quarter 2024 samples. SVMP analytical results are summarized on **Table 3** and compared to the EGLE Residential SSVIAC for a residence with a basement.

3.4 Groundwater Elevation Monitoring

Site-wide groundwater elevation surveys were completed during both the semi-annual and annual 2024 events. Additional groundwater elevation measurements were collected at sampled wells during the quarterly events. **Table 8** summarizes groundwater elevation measurements collected at the Site. Groundwater elevation contour maps (**Figures 13** through **16**), LNAPL trend graphs (**Appendix F**), and groundwater elevation hydrographs (**Appendix G**) are provided for review. Trends within each water-bearing zone are discussed below.

3.4.1 Perched Zone

The groundwater elevation hydrographs included in **Appendix G** indicate that potentiometric surface elevations in the perched zone have been stable to increasing during the period of monitoring beginning in 2012. Storm sewer modifications were completed at Plant 3 during November 2018 and at Plant 2 in 2019 and 2020. Comparison of groundwater elevations observed on Plant 3 prior to storm sewer modifications and post-modification generally show increased variability of water levels with fluctuations (both increasing and decreasing) that are within the range of seasonal variation. Perched groundwater elevations at Plant 2 generally show a gradual increasing trend since 2012, an increase in the slope of the trend following the 2019 storm sewer modifications and a stabilized trend since 2022. It is unclear whether the small changes in groundwater elevation on Plant 2 are influenced by

storm sewer modifications, or part of longer-term trends related to decommissioning of the plants. Groundwater elevations at Plant 6 perched monitoring wells have been generally stable since 2012.

Due to the predominance of clay-rich sediment, the perched zone is interbedded and has an overall low permeability and is characterized by isolated sand zones within layers of silt and clay. The potentiometric surface measured within the perched zone is presented on **Figure 13** (Plants 2 and 6) and **Figure 14** (Plant 3). Both figures include potentiometric surface contours for all wells less than 25 feet deep. The lower conductivity clay and silt that dominate this zone result in high horizontal and vertical gradients. Sand zones are discontinuous and often do not correlate from well to well, and minor variations in well screen elevation have a significant impact on the potentiometric surface. Therefore, although the contour maps represent the overall shallow potentiometric surface, they are of limited use to determine groundwater flow direction.

3.4.2 Deep Overburden

Saturated deep overburden is present only at Plant 3 within a southwest-northeast trending bedrock valley. Groundwater present within the deep overburden is hydraulically connected to the weathered bedrock and bedrock zones. The groundwater elevation hydrographs included in **Appendix G** show that deep overburden water levels appear to be decreasing since 2020 following a period of steady increases 2016 to 2020. The variations observed in deep overburden water levels are likely the result of changes in precipitation, as well as long-term changes in municipal pumping.

Figure 15 presents potentiometric surface elevation contours for deep overburden wells located on Plant 3. In the northern portion of Plant 3, the apparent groundwater gradient is northwesterly consistent with historical measurements. In the southwestern portion of Plant 3, deep overburden groundwater elevation appears to be flat near the former “coliseum” (former stamping area basement) with groundwater elevation varying between 797.49 and 798.90 ft msl. Historically, the deep overburden gradient was to the southeast but has been variable in recent years.

3.4.3 Weathered Bedrock and Bedrock

Potentiometric surface trend graphs for select bedrock and weathered bedrock wells are included in **Appendix G**. Following a period of increasing elevations from 2016 to 2020, the bedrock and weathered bedrock elevations have been decreasing since 2021 with an overall increase in vertical gradient (average of 0.32 ft/ft downward in 2024) within the Saginaw Formation. The variable potentiometric surface is likely attributed to changes in municipal pumping patterns, both long-term and seasonally.

Like the perched zone, the depth of a monitoring well within the weathered bedrock or bedrock zones plays a large role in the potentiometric surface observed at that location. Large vertical gradients occur in formations with vertical anisotropy and indicate a lack of vertical groundwater communication. Traditional groundwater elevation contour maps were not prepared for the weathered bedrock wells because they would be of limited use for interpreting groundwater flow direction and transport. For the bedrock (and by extension, the weathered bedrock), the effective head or “corrected” potentiometric surface elevation was calculated based on the observed vertical gradient. Where vertical gradient was observed, the data was normalized to the deepest well. Although not common, this approach is not unique. Normalization of head based on vertical gradient has been applied at other sites with steep vertical gradients (e.g., Ackland & Schymiczek, CLU-IN [https://clu-in.org/products/siteprof/2004fracrockconf/cdr_pdfs/indexed/group1/622.pdf]). Hydraulic gradient is a 3D flow vector (X,Y,Z). Normalizing the observed groundwater elevations based on the vertical gradient simply adjusts

the vertical (Z) component to a uniform depth to present the groundwater flow vector in a consistent two-dimensional (X and Y) frame of reference.

As indicated in **Table 9**, the vertical gradient tends to be limited in the Grand River Formation near the coliseum and increases to the south to 0.51 ft/ft downward at wells MW-15-72/MW-12-05R (located in central Plant 2) before stabilizing to 0.70 ft/ft downward at wells MW-13-52/MW-13-50 (located on western Plant 6). This variation in vertical gradient appears to coincide with the transition between bedrock formations. Near the former coliseum in the western portion of Plant 3, where the bedrock encountered consists of the more uniform and permeable Grand River Formation, the vertical gradient is negligible. To the south, within the interbedded sandstone and shale of the Saginaw Formation, there is a significant vertical gradient due to the vertical anisotropy created by the interbedded shale and sandstone of the Saginaw Formation. Review of the bedrock wells and other deep boring logs suggests an approximate geologic contact between the Grand River and Saginaw Formations oriented roughly southwest to northeast. **Figure 16** includes the interpreted location of the geologic contact.

To calculate the effective head for the bedrock, an average downward gradient 0.32 ft/ft was applied to bedrock monitoring wells installed within the Saginaw Formation (**Table 9**) as follows:

$$GW_{eff} = GW – (dh/dl * \Delta Elev)$$

Where:

GW_{eff} = effective groundwater elevation

GW = measured groundwater elevation

dh/dl = vertical gradient

ΔElev = change in elevation between deepest well and measured well

As shown in **Figure 16**, the corrected bedrock groundwater elevation contours are a good match for the distribution of the lower 1,4-dioxane plume located within the weathered bedrock zone. Groundwater flow is generally to the south-southeast, but as documented on the December 5, 2019, quarterly update presentation provided to EGLE, the gradient in the central part of Plant 2 has become flatter and more variable in recent years with a periodic west to east flow component beneath the Plant 2 LNAPL area. In May 2024, the bedrock groundwater contour suggests more southerly flow in the southern portion of Plant 2.

4 Groundwater Plume Stability

A preliminary groundwater plume stability assessment was completed at the Site in April 2014 (Arcadis 2014a). The primary objective of that assessment was to provide an initial evaluation of plume stability and determine the suitability of monitored plume stability as a remedial alternative. The preliminary plume stability assessment used data collected between October 2011 and first quarter 2014 as well as geochemical data collected during the August and September 2013 events.

The plume stability assessment has been updated annually and incorporated into the annual reports. Operation of the biosparge system in weathered bedrock has decreased concentrations in the lower 1,4-dioxane plume significantly since 2020. The plume stability assessment presented in this section represents an updated analysis of time-series concentration trends using data collected through fourth quarter 2024.

The updated statistical analysis of dissolved-phase constituent of concern (COC) concentrations with time was completed using the Mann-Kendall slope trend test. A revised list of wells and parameters were used for this report. The updated wells and parameters include all wells that are part of the approved 2023 IGMP and meet the following criteria:

- At least seven sampling events have been completed.
- At least 50 percent of the sample results were greater than detection limits.
- At least 25 percent of the sampling results exceeded the lowest relevant criteria within the last six sampling events.

Guidance for conducting the Mann-Kendall test has been provided in Section 17.3.2 of the USEPA guidance document (USEPA 2009). The Mann-Kendall trend test is a non-parametric test to evaluate if a statistically significant unidirectional (consistently increasing or decreasing) trend was observed during the monitoring period. Correlations were accepted as significant for p-values less than or equal to the alpha value, 0.10 (with a confidence level of 90 percent). Additional information regarding the Mann-Kendall analysis and methods is provided in the 2014 *Preliminary Groundwater Geochemical and Plume Stability Assessment* (Arcadis 2014a) and in **Appendix H**. **Table 10** presents a comprehensive summary Mann-Kendall trend analysis results. The overall trend results are shown on **Figures 17** and **18** for perched and weathered bedrock zones, respectively. **Appendix H** presents plots of concentration through time for all well/COC pairs that met criteria for statistical trend analysis.

4.1 Perched Zone

4.1.1 1,4-Dioxane

The 1,4-dioxane concentrations in individual wells exhibit mostly decreasing or no significant trends within the perched zone and the overall plume appears to be stable.

4.1.2 Volatile Organic Compounds

Concentrations of VOCs in the perched zone are sporadic, and a large plume footprint has not been observed; rather, VOC concentrations in groundwater greater than DW criteria are limited to discrete source areas (e.g., central portion of Plant 2) and areas immediately surrounding observed LNAPL at Plants 2 and 3. VOC data showed decreasing or no significant trends across the Site with the exception of MW-14-54 in Area 2, which has variable, but statistically increasing, trends for several aromatic hydrocarbons.

4.1.3 Metals

During previous plume stability assessments, most statistical analyses for concentrations of metals in perched zone monitoring wells were determined to be decreasing or exhibit no significant trend, suggesting overall stability in metals greater than criteria. The trend evaluation for metals focused on monitoring wells near the Site boundary to evaluate the potential for off-site metal impacts. Of the perimeter wells, only MWBP-10-UST5-6 indicated an increasing trend for arsenic. The increasing trend for arsenic in this well is for the period from 2013 through 2024. Elevated arsenic in this area is related to reducing conditions associated with the underground storage tanks formally located in RFI Area 6.

4.1.4 PFOS, PFOA, PFNA, and PFHxS

Twenty-nine monitoring wells met the criteria for Mann-Kendall analysis for PFOA, PFOS, PFNA, and/or PFHxS during 2024. Statistical trend analysis indicates that nine wells (MW-12-09, MW-12-12, MW-12-13, MW-14-59, MW-14-60, MW-14-67, MW-18-88, MW-18-103, and MW-22-144) have statistically increasing trends and all other wells with PFAS concentrations exceeding criteria demonstrate stable to decreasing trends. An increasing trend was observed at MW-14-67, MW-12-12, and MW-12-13 for PFOA near the eastern boundary of Plant 6. PFOA is currently defined east of Plant 6 in this area by monitoring well MW-22-150 and MW-22-149. These monitoring wells will continue to be sampled for PFAS on an annual basis. Further south at offsite monitoring well MW-22-144, an increasing trend of PFOA was observed which has concentrations ranging from 5 to 17 ng/L since 2022, although concentrations decreased at this location during the second half of 2024. Downgradient wells MW-22-158 and MW-22-160 continue to have low level detections or no detections of PFOA and the furthest downgradient well, MW-22-159, is consistently dry.

Increasing trends are also observed for PFOS at Plant 3 at monitoring well MW-18-88 with concentrations up to 310 ng/L in November 2024. PFAS does not exceed criteria at the six perched sentinel monitoring wells installed further east within the City of Lansing's Dunnebacke and Westside Parks. PFHxS at MW-18-103 is an exception, which has concentrations up to 63 ng/L. The presence of PFHxS at MW-18-103 appears to be isolated and may be related to an off-site source area such as the shingle recycling center located north of this location.

Increasing trends are also observed in central Plant 2 for PFOA at MW-14-59, and for PFOA and PFOS at MW-14-60. MW-12-09 on the western boundary of Plant 2 was observed to have an increasing trend of PFOA, but since installation has only varied a total of 4 ng/L. These monitoring wells will continue to be monitored for PFAS on an annual basis.

4.2 Deep Overburden and Weathered Bedrock

4.2.1 1,4-Dioxane

Prior to the operation of the biosparge system, concentrations within the lower 1,4-dioxane plume had decreasing to stable trends in the northern portion of the plume on Plant 3, and stable to increasing trends towards the toe of the plume and the Plant 2 LNAPL area. Since the biosparge startup, concentrations throughout the lower 1,4-dioxane plume are mostly stable to decreasing, except for MW-13-34, MW-15-73, MW-19-116, MW-20-127, MW-16-85, and MW-14-56, which show increasing trends.

Monitoring well MW-13-34 is a weathered bedrock well at Plant 3 located downgradient of biosparge Transect A near Saginaw St. MW-13-34 has exhibited an overall increasing trend for 1,4-dioxane since 2013 ranging from approximately 17 µg/L up to 127 µg/L. Monitoring well MW-13-48, installed in the deep overburden above MW-13-34 has shown a decreasing trend since 2015 beginning at a concentration of approximately 380 µg/L and decreasing to 94 µg/L in 2024. At this location the permeable pathway is primarily the deep overburden (MW-13-48 screen interval), and it is thought that the MW-13-34 concentration is more representative of mass storage and back diffusion. Both wells will continue to be monitored annually according to the 2025 IMP.

Monitoring well MW-20-127 is a weathered bedrock well at Plant 2 located downgradient of biosparge Transect B. MW-20-127 has exhibited an overall increasing trend for 1,4-dioxane between 2020 and 2024, ranging from approximately 85 µg/L up to 180 µg/L. Monitoring wells surrounding MW-20-127 show stable to decreasing trends except for downgradient well MW-19-116 which shows an increasing trend for 1,4-dioxane. Monitoring well MW-20-127 is installed within the weathered Saginaw Formation and may be isolated hydraulically from surrounding

wells. Monitoring well MW-19-116 was stable before showing an increase in concentration during the second quarter 2024. Monitoring well MW-20-127 will continue to be sampled for 1,4-dioxane on a semi-annual basis, and MW-19-116 will be monitored on an annual basis according to the 2025 IMP.

Monitoring well MW-16-85 is a weathered bedrock well at the northeast lobe of the 1,4-dioxane plume on Plant 2, which initially indicated decreasing trends after the biosparge startup. In October of 2023 concentrations increased from near 7 µg/L to 28 µg/L but decreased in 2024 to 18 µg/L and then 8 µg/L in May and November 2024, respectively. Monitoring well MW-16-85 will continue to be sampled for 1,4-dioxane on a semi-annual basis according to the 2025 IMP.

MW-14-56 and MW-15-73 are weathered bedrock wells on the western border of Plant 2 that show increasing trends for 1,4-dioxane. Well MW-14-56 has been consistently increasing since 2015 (from 7 µg/L to 18 µg/L). Following initial increases at MW-15-73, concentrations have been stable to decreasing since 2018 when the maximum concentration was 11 µg/L. Both wells are located west of the RACER lower 1,4-dioxane plume and concentrations of 1,4-dioxane at these locations may be attributed to an off-site source area.

5 Conclusions

This Annual Report summarizes the groundwater monitoring activities completed between January and December 2024, consistent with the 2023 IGMP. Based on the results of the sampling and review of the plume stability evaluation, the following conclusions are offered:

- *Lower 1,4-Dioxane:* The Plant 3 biosparge system began operating in May of 2019, and the Plant 2 biosparge system began operating in August of 2020. Since the biosparge startup, concentrations across the lower 1,4-dioxane plume are mostly stable to decreasing. Six weathered bedrock wells exhibit increasing trends for 1,4-dioxane (MW-13-34, MW-20-127, MW-19-116, MW-16-85, MW-15-73 and MW-14-56). Increasing trends at these locations can be attributed to hydrogeologic conditions, transient increases in concentration, or offsite source areas. These wells will continue to be monitored according to the *Revised Interim Monitoring Work Plan – 2025 (IMP)* (Arcadis, 2025c).
- *Perched 1,4-Dioxane:* Elevated detections of 1,4-dioxane at MW-14-58R and associated wells on western Plant 2 will continue to be monitored semi-annually to annually.
- *1,4-Dioxane in Bedrock:* Detections of 1,4-dioxane in deeper bedrock monitoring wells installed along the core of the plume ranged from 0.11 µg/L to 4.0 µg/L and did not exceed drinking water criteria in 2024.
- Lansing Township wells TWP-90-03, TWP-90-04, and TWP-90-05 were sampled in November 2024 and analyzed for 1,4-dioxane using USEPA Method 522 for drinking water. Concentrations of 0.12 (TWP-90-03), 0.35 (TWP-90-04), and 0.43 µg/L (TWP-90-05), were reported and are consistent with previous sampling results. The low-level detections of 1,4-dioxane in the region may result from several regional and/or numerous nonpoint sources. Annual sampling of Lansing Township wells will continue according to the 2025 IMP.
- *VOCs:* Groundwater sample results indicate that concentrations of 1,1-DCE exceed residential drinking water or GSI criteria at the Site during 2024. Elevated concentrations of 1,1-DCE were observed in perched monitoring wells including MW-22-156, on the western property boundary of Plant 2. Concentrations of elevated 1,1-DCE at MW-22-156 appear to be localized, as on-site and off-site wells in the vicinity remain below detection. In addition, 1,1-DCA was detected at MW-22-156 and MW-22-153 at concentrations above SSVIAC and will be monitored semi-annually according to the 2025 IMP.

- *VOCs:* Groundwater sample results from MW-14-54 at Plant 2 indicate that concentrations of 1,2,4-trimethylbenzene, benzene, ethylbenzene, naphthalene, and total xylenes exceed residential drinking water or GSI criteria at the Site during 2024. Concentrations of 1,2,4-trimethylbenzene, benzene, ethylbenzene, naphthalene, and total xylenes at MW-14-54 appear to be localized, as on-site wells in the vicinity remain below criteria.
- *VOCs:* Groundwater sample results from MW-03-06 at Plant 6 indicate that concentrations of vinyl chloride exceed residential drinking water criteria at the Site during 2024. Concentrations of vinyl chloride appear to be localized, as on-site wells in the vicinity remain below criteria.
- *Plant 6 Entrance VI:* Analytical results from MW-22-154 in 2024 showed vinyl chloride ranging from non-detect (<1 µg/L) during the first and second quarter, 2 µg/L in the third quarter and non-detect again in fourth quarter. Soil vapor sampling at SVMP-20-01, located between the Plant 6 entrance and the residential properties, has not detected vinyl chloride. Monitoring VOCs in excess of SSVIAC at the Plant 6 entrance will continue semi-annually according to the 2025 IMP.
- *PFAS Compounds:* PFOS, PFOA, PFNA, and PFHxS concentrations exceeded DW and GSI Criteria in perched monitoring wells during 2024 groundwater monitoring events. Concentrations of PFAS in perched groundwater at Plants 2, 3, and 6 property boundaries, show stable to decreasing trends, except for one well on Plant 2 western boundary, three wells on the Plant 6 eastern boundary (including one off-site) and two wells on or near the Plant 3 eastern boundary (including one off-site). These locations are delineated off-site. There were no exceedances noted in monitoring wells with the public park east of Plant 3 except for MW-18-103, which is likely related to the shingle recycling center located to the north. Additional sampling will continue according to the 2025 IMP semi-annually.
- *PFAS Compounds:* MW-22-152, located northeast of Plant 6, increased in PFOA concentration through 2024 with a concentration of 15 ng/L detected during the fourth quarter. There is no risk associated with a DW criteria exceedance at this location but sampling will continue according to the 2025 IMP semi-annually.
- *Stormwater PFAS:* The quarterly storm sewer sampling indicates the storm sewer modifications at Plant 3 have successfully reduced PFAS discharge to concentrations at or below the Rule 57 criteria. Plant 2 and 6 modifications have reduced PFAS concentrations to near Rule 57 Criteria and will continue to be monitored for changes semi-annually.
- *LNAPL:* LNAPL extent and thicknesses are consistent with previous annual reports, there is no indication of LNAPL migration. LNAPL thickness monitoring will be discontinued in 2025 in accordance with the 2025 IMP.

Based on the site monitoring data collected in 2024, there are no known complete exposure pathways regarding nearby residents or on-site workers and continued operation of the biosparge system is appropriate to address 1,4-dioxane-impacted groundwater in the weathered bedrock. No action beyond additional monitoring and implementation the proposed biosparge system partial shutdown test is recommended at this time. The DRC proposed as part of the 2021 Corrective Measure Plan is still appropriate for the Site. Results of the monitoring program do not suggest changes are required for the previously submitted *Plant 2 LNAPL Conceptual Site Model* (Arcadis 2020), or the *Lower 1,4-Dioxane Conceptual Site Model* (Arcadis 2021a). Groundwater and storm sewer PFAS monitoring will continue in accordance with the 2025 IMP (Arcadis, 2025c).

6 Proposed IGMP Modifications

An update to the IGMP has been provided to EGLE under a separate cover. The *Revised Interim Monitoring Work Plan – 2025* was submitted to EGLE on April 18, 2025, and is pending final approval. The revised IMP incorporates continued groundwater elevation monitoring, removal of LNAPL gauging, and updating monitoring frequencies.

7 References

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Tables

Table 1
Revised Interim Groundwater Monitoring Summary
Revised February 2024
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

Well	Screen Interval (ft bgs)	Gauging*	Analyte				Primary Function
			VOCs	1,4-Dioxane	SVOCs	PFAS	
Plant 2							
Perched							
LMW-12-01	7-12	SA					LNAPL Monitoring
LMW-12-03D	17.3-22.3	SA					LNAPL Monitoring
LMW-12-03S	4-9	SA					LNAPL Monitoring
LMW-12-05	7-12	SA					LNAPL Monitoring
LMW-12-07	4-9	SA					LNAPL Monitoring
LMW-12-08	8-13	SA					LNAPL Monitoring
LMW-14-12D	18-23	SA					LNAPL Monitoring
LMW-14-13D	17.5-22.5	SA					LNAPL Monitoring
LMW-14-15D	18-23	SA					LNAPL Monitoring
LMW-15-16D	19.5-24.5	SA					LNAPL Monitoring
MW-01(2)	10-20	SA	B				VOC sentinel
MW-12-07	10-15	SA					Groundwater elevation monitoring
MW-12-08	19-24	SA					Groundwater elevation monitoring
MW-12-09	14-19	SA	B	B		A	VOC Sentinel, perched 1,4-dioxane sentinel, PFAS sentinel
MW-12-18	28-33	SA	B			A	VOC sentinel, PFAS sentinel
MW-14-54	14-19	SA	B				VOC monitoring
MW-14-55	13-18	SA	Qd				VOC monitoring
MW-14-57	15-20	SA		A			Perched 1,4-dioxane monitoring
MW-14-58R	22-27	SA	B	A		A	Perched 1,4-dioxane monitoring, PFAS Monitoring
MW-14-59	12-17	SA	B	A	Qd	A	Perched 1,4-dioxane monitoring, SVOC evaluation, PFAS monitoring
MW-14-60	15-20	SA	B	A	Qd	A	Perched 1,4-dioxane monitoring, SVOC evaluation, PFAS monitoring
MW-14-62	12-17	SA	B	A	Qd	A	Perched 1,4-dioxane monitoring, PFAS Monitoring
MW-21-139	7-12	SA		SA		SA	Perched 1,4-dioxane monitoring
MW-22-153	25-30	SA	Q	Q			Perched 1,4-dioxane monitoring
MW-22-155	25.5-30.5	SA		Q			Perched 1,4-dioxane monitoring
MW-22-156	23-28	SA		Q			Perched 1,4-dioxane monitoring
MW-22-157	24-29	SA		Q			Perched 1,4-dioxane monitoring
MW-23-161	20-25	SA	Q	Q			Perched 1,4-dioxane monitoring
MW-23-162	29-34	SA	Q	Q			Perched 1,4-dioxane monitoring
MW-23-163	20-25	SA	Q	Q			Perched 1,4-dioxane monitoring
P2-MW-02	31-41	SA				A	Groundwater elevation monitoring
P2-MW-03	27-32	SA					Groundwater elevation monitoring
P2-MW-04	26-36	SA		A	Qd	A	Perched 1,4-dioxane monitoring, SVOC evaluation
P2-SB-03	14-19	SA					Groundwater elevation monitoring
P2-SB-06	24-29	SA					Groundwater elevation monitoring
P2-SB-20	8-13	SA					Groundwater elevation monitoring
P2-SB-37	5-10	SA					LNAPL Monitoring
PMW-01	2.59-7.59	SA					LNAPL Monitoring
PMW-02	2.59-7.59	SA					LNAPL Monitoring
Deep Overburden and Weathered Bedrock							
MW-13-43	72-77	SA		SA			Lower 1,4-dioxane monitoring
MW-13-45	72-77	SA		SA			Lower 1,4-dioxane monitoring
MW-13-51	77-87	SA					Lower 1,4-dioxane sentinel
MW-14-56	71-76	SA		A		A	Lower 1,4-dioxane sentinel
MW-14-61	70-75	SA	A	SA	Qd	A	Lower 1,4-dioxane sentinel, SVOC Monitoring, PFAS Monitoring
MW-14-63	68-73	SA		A			Lower 1,4-dioxane sentinel
MW-15-72	63-68	SA	B	SA	Qd	A	Lower 1,4-dioxane monitoring
MW-15-73	78-83	SA		B			Lower 1,4-dioxane monitoring
MW-16-74	66-71	SA		A			Lower 1,4-dioxane sentinel
MW-16-75	66-71	SA		A			Lower 1,4-dioxane sentinel
MW-16-76	70-75	SA		A			Lower 1,4-dioxane sentinel
MW-16-77	66-71	SA		A			Lower 1,4-dioxane sentinel
MW-16-78	68-73	SA		A			Lower 1,4-dioxane sentinel
MW-16-80	68-73	SA		A			Lower 1,4-dioxane monitoring
MW-16-81	70-75	SA	B	SA		A	Lower 1,4-dioxane monitoring
MW-16-82	70-75	SA		A			Lower 1,4-dioxane monitoring
MW-16-83	71-76	SA		B			Lower 1,4-dioxane sentinel
MW-16-84	72-77	SA	A	SA			Lower 1,4-dioxane monitoring
MW-16-85	74-79	SA	B	SA			Lower 1,4-dioxane monitoring
MW-17-86	73-78	SA	B	SA			Lower 1,4-dioxane monitoring
MW-19-115	72.5-77.5	SA		SA			Lower 1,4-dioxane monitoring
MW-19-116	65-70	SA		SA			Lower 1,4-dioxane monitoring
MW-19-117	54-59	SA		SA			Lower 1,4-dioxane monitoring

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Well	Screen Interval (ft bgs)	Gauging*	Analyte				Primary Function
			VOCs	1,4-Dioxane	SVOCs	PFAS	
Plant 2							
MW-19-120	66-71	SA	A	SA			Lower 1,4-dioxane monitoring
MW-19-121	66-71	SA		SA			
MW-19-122	59-64	SA		SA			
MW-19-123	66-71	SA		SA			
MW-19-124	65-70	SA		SA			
MW-20-126	69-74	SA		SA			
MW-20-127	72-77	SA		SA			
MW-20-128	65-70	SA		SA			
MW-20-129	64-69	SA		SA			
MW-20-130	63-68	SA		SA		SA	PFAS Sentinal
MW-21-140	67-72	SA		SA			Lower 1,4-dioxane monitoring
MW-21-142	71.5-76.5	SA		SA			Lower 1,4-dioxane monitoring
PW-14-01	71.6-76.8	SA		SA			Lower 1,4-dioxane monitoring
PW-14-02	75-80	SA	Qd	SA			Lower 1,4-dioxane monitoring
TW-14-02	67-72	SA	Qd	SA			Lower 1,4-dioxane monitoring
TW-15-12	73-78	SA		SA			
Bedrock							
MW-12-01	87-110	SA		B(1)			Bedrock sentinel
MW-12-02	87-110	SA		B(1)			Bedrock sentinel
MW-12-05R	100-112	SA		A(1)			Bedrock sentinel
MW-12-06	80.6-99.5	SA		A(1)			Bedrock sentinel
MW-13-44	96-115	SA		A(1)			Bedrock sentinel
MW-17-87	100-112	SA		A(1)			Bedrock sentinel
MW-19-118D	175-190	SA		A(1)			Bedrock sentinel
MW-19-118S	145-160	SA		A(1)			Bedrock sentinel
MW-19-125	100-115	SA		A(1)			Bedrock sentinel
Lansing Township Wells							
TWP-03	-	-		A(1)			Municipal Well
TWP-04	-	-		A(1)			Municipal Well
TWP-05	-	-		A(1)			Municipal Well
Storm Sewer							
P2-MH-2	-	-				Q	PFAS sewer monitoring
P2-MH-9	-	-				Q	PFAS sewer monitoring, typically dry, no sample
P2-MH-W	-	-				Q	PFAS sewer monitoring

Notes:

Wells shown in gray shading are part of biosparge performance monitoring, not part of previous formal IGMP submission. Additional details included in Table 7.

* Site wide gauging to alternate between semi-annual events to account for seasonal variability. Semi-annual gauging includes all wells sampled semi-annually.

** Select metals includes arsenic, nickel, lead, vanadium, chromium, and copper.

(1) = Analyzed for 1,4-dioxane via low-level USEPA Method 522

New wells will be added to the figures and incorporated into the annual monitoring once 4 samples are collected and a COC list is determined.

ft bgs = feet below ground surface

M = Monthly

Q = Quarterly

SA = Semi-annual

A = Annual (2Q or 4Q of each year, each year rotates which quarter)

B = Biennial (starting 2nd quarter of 2020)

Qd = Quadrennial (every 4 years, starting 2020)

Table 1
Revised Interim Groundwater Monitoring Summary
Revised February 2024
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

Well	Screen Interval (ft bgs)	Gauging*	Analyte						Primary Function
			VOCs	1,4-Dioxane	Select Metals**	Hexavalent Chromium	SVOCs	PFAS	
Plant 3									
Perched									
CH-14-RO	7-12	SA			Qd	Qd		A	Metals monitoring
LMW-12-09	3-8	SA							LNAPL Monitoring
LMW-12-10	14-19	SA							LNAPL Monitoring
MW-05(3)	10-15	SA	B						VOC sentinel
MW-13-32	5-10	SA			Qd		Qd		Groundwater elevation monitoring / perimeter SVOC & Metals monitoring
MW-18-88	6-11	SA	B		Qd	Qd		SA	PFAS monitoring / sentinel VOC & Metals
MW-18-89	7-12	SA						A	PFAS monitoring
MW-18-90	15-20	SA						A	PFAS monitoring
MW-18-91	7-12	SA						A	PFAS monitoring
MW-18-92	23-28	SA						A	PFAS sentinel
MW-18-95	4.5-9.5	SA						SA	PFAS monitoring
MW-18-96	7-12	SA						A	PFAS sentinel
MW-18-98	7-12	SA						SA	PFAS sentinel
MW-18-99	9-14	SA						SA	PFAS sentinel
MW-18-100	8-13	SA						SA	PFAS sentinel
MW-18-102	10-15	SA						A	PFAS sentinel
MW-18-103	5-10	SA						A	PFAS monitoring
MW-18-104	5-10	SA						A	PFAS sentinel
MW-18-105	6-11	SA						SA	PFAS monitoring
MW-18-106	5-10	SA							PFAS sentinel
MW-19-107	23-28	SA						SA	PFAS sentinel
MW-19-108	23-28	SA						SA	PFAS sentinel
MW-19-110	8-13	SA						A	PFAS sentinel
MW-19-111	20-25	SA						SA	PFAS sentinel
MW-19-112	9-14	SA						A	PFAS sentinel
MW-19-113	16-21	SA						A	PFAS sentinel
MW-19-114	6-11	SA						A	PFAS sentinel
P3-SB-28	8-13	SA					Qd		Groundwater elevation monitoring
UNK-11	6.5-11.5	SA					Qd		VOC monitoring/SVOCs monitoring, VOCs sentinel well
UNK-15	11-16	SA						SA	PFAS monitoring
Deep Overburden and Weathered Bedrock									
MW-02-01(3)	59-69	SA							Groundwater elevation monitoring
MW-02-02(3)	74-84	SA		B					Lower 1,4-dioxane sentinel
MW-02-03(3)	79-89	SA							Groundwater elevation monitoring
MW-02-04(3)	76-86	SA		B	Qd			A	Lower 1,4-dioxane/PFAS/metals sentinel
MW-04-03(3)	80-90	SA							Groundwater elevation monitoring
MW-04-04(3)	72-82	SA							Groundwater elevation monitoring
MW-12-20	75-80	SA		B					Lower 1,4-dioxane sentinel
MW-12-21	70-75	SA	B	SA					Lower 1,4-dioxane monitoring
MW-13-22	89-94	SA	B	A					Lower 1,4-dioxane monitoring
MW-13-23	69-74	SA		B					Lower 1,4-dioxane sentinel
MW-13-24	69-74	SA		B					Lower 1,4-dioxane sentinel
MW-13-25	67-72	SA		A					Lower 1,4-dioxane monitoring
MW-13-26	72-77	SA							Groundwater elevation monitoring
MW-13-27	67-72	SA							Groundwater elevation monitoring
MW-13-29	68-73	SA		A					Lower 1,4-dioxane monitoring
MW-13-30	72-77	SA							Groundwater elevation monitoring
MW-13-34	74-79	SA	B	SA					Lower 1,4-dioxane monitoring
MW-13-40	72-77	SA							Groundwater elevation monitoring
MW-13-41	77-82	SA	B						lower VOC sentinel
MW-13-46	68-73	SA		A					Lower 1,4-dioxane monitoring

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			VOCs	1,4-Dioxane	Select Metals**	Hexavalent Chromium	SVOCs	PFAS	
Plant 3									
MW-13-48	65-70	SA	B	SA					Lower 1,4-dioxane monitoring
MW-13-49	73-78	SA		B					Lower 1,4-dioxane monitoring
MW-14-64	98.6-103.6	SA		B					Lower 1,4-dioxane sentinel
MW-15-71	110-115	SA		B					Lower 1,4-dioxane sentinel
MW-18-93	77.5-82.5	SA						A	Lower PFAS Sentinel
MW-18-94	72-77	SA						A	Lower PFAS, 1,4-Dioxane Sentinel
MW-18-97	85-90	SA						A	Lower PFAS Sentinel
MW-18-101	80-85	SA		B				SA	Lower PFAS Sentinel
MW-22	52.5-62.5	SA							Groundwater elevation monitoring
MW-23	52-62	SA						A	PFAS sentinel
MW-91-2R	75-80	SA		B	Qd	Qd		A	Lower 1,4-dioxane, PFAS and metals sentinel
MW-93-1	65-75	SA							Groundwater elevation monitoring
PW-14-03	85-90	SA		SA					Lower 1,4-dioxane monitoring
TW-15-11	85-90	SA		SA					
Bedrock									
MW-04-01(3)	95-105	-							No longer part of sampling or gauging
MW-04-02(3)	126-136	SA							Groundwater elevation monitoring
MW-12-04	77-100	SA							Groundwater elevation monitoring
MW-13-28	99-115.5	SA		A(1)					Bedrock sentinel
MW-13-37	97-112	SA		B(1)					1,4-D sentinel
MW-13-38	107-124	SA		B(1)					Bedrock sentinel
MW-13-39B	97-112	SA							Groundwater elevation monitoring
MW-13-47	99-119	SA		B(1)					Bedrock sentinel
MW-19-119D	180-195	SA		A(1)					Bedrock sentinel
MW-19-119S	145-160	SA		A(1)					Bedrock sentinel
MW-88-1	103.5-140	SA							Groundwater elevation monitoring
MW-91-3	105-117	SA							Bedrock sentinel
MW-91-4	116-132.5	SA							Groundwater elevation monitoring
MW-91-5	112.5-128	SA		B(1)					Bedrock sentinel
MW-91-6	82-98	SA		B(1)					Bedrock sentinel
Storm Sewer									
P3-MH-284	-	-						Q	PFAS sewer monitoring
P3-MH-NE	-	-						Q	PFAS sewer monitoring, typically dry, no sample

Notes:

Wells shown in gray shading are part of biosparge performance monitoring, not part of previous formal IGMP submission. Additional details included in Table 7.

* Site wide gauging to alternate between semi-annual events to account for seasonal variability. Semi-annual gauging includes all wells sampled semi-annually.

** Select metals includes arsenic, nickel, lead, vanadium, chromium, and copper.

(1) - Analyzed for 1,4-dioxane via low-level USEPA Method 522

ft bgs = feet below ground surface

Q = quarterly

SA = semi-annual

A = annual

B = biennial (starting 2nd quarter of 2020)

Qd = Quadrennial

Table 1
Revised Interim Groundwater Monitoring Summary
Revised February 2024
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

Well	Screen Interval (ft bgs)	Gauging*	Analyte					Primary Function
			VOCs	1,4-Dioxane	Select Metals**	SVOCs	PFAS	
Plant 6								
Perched								
MW-02-02(6)	35-45	SA	B	A		Qd		Perched 1,4-dioxane monitoring, SVOC evaluation
MW-03-02	30-40	SA						Groundwater elevation monitoring
MW-03-05	35-45	SA	B	A				Perched 1,4-dioxane sentinel
MW-03-06	30-40	SA	B	A				Perched 1,4-dioxane sentinel
MW-03-08	35-45	SA						Perched VOC monitoring
MW-04-05(6)	20-30	SA	SA				A	Perched PFAS sentinel
MW-12-10R	10-15	SA					A	Groundwater elevation monitoring, PFAS
MW-12-11	13-18	SA					A	PFAS Sentinel
MW-12-12	13-18	SA					SA	PFAS monitoring
MW-12-13	18.5-23.5	SA			Qd		SA	PFAS monitoring
MW-12-14	25-30	SA						Groundwater elevation monitoring
MW-12-16	28-33	SA						Boundary monitoring
MW-13-35	25-30	-						Potential PFAS Monitoring if needed/ No gauging necessary
MW-13-36R	5.5-10.5	SA			Qd		SA	PFAS monitoring
MW-14-66	14-19	SA			Qd			Metals sentinel
MW-14-67	13-18	SA			Qd		A	Metals/PFAS sentinel
MW-14-69	41-46	SA						Groundwater elevation monitoring
MW-14-70	16-21	SA					A	PFAS Sentinel
MW-20-131	5-10	SA	SA				SA	PFAS monitoring
MW-20-132	6-11	SA	SA				SA	PFAS monitoring
MW-21-133	10-15	SA					SA	PFAS monitoring
MW-21-134	11-16	SA					SA	PFAS monitoring
MW-21-135	22-27	SA					SA	PFAS monitoring
MW-21-136	9-14	SA					A	PFAS monitoring
MW-21-137	7-12	SA					A	PFAS monitoring
MW-21-138	24-29	SA					A	PFAS monitoring
MW-22-143	26-31	SA					Q	PFAS monitoring
MW-22-144	19.5-24.5	SA					Q	PFAS monitoring
MW-22-145	10.5-15.5	SA					Q	PFAS monitoring
MW-22-146	5.5-10.5	SA					Q	PFAS monitoring
MW-22-147	7.5-12.5	SA					Q	PFAS monitoring
MW-22-148	24.5-29.5	SA					Q	PFAS monitoring
MW-22-149	5.5-10.5	SA					Q	PFAS monitoring
MW-22-150	13-18	SA					Q	PFAS monitoring
MW-22-151	13-18	SA					Q	PFAS monitoring
MW-22-152	10-15	SA	SA				Q	PFAS monitoring
MW-22-154	16-11	SA	Q					VOCs monitoring
MW-22-158	16-21	SA					Q	PFAS monitoring
MW-22-159	26-31	SA					Q	PFAS monitoring
MW-22-160	14-19	SA					Q	PFAS monitoring
MWBP-10-UST5-6	28-38	SA			Qd			VOCs/metal monitoring
MWBP-11-UST1-4	9-19	SA			Qd			VOCs/metal monitoring
MWBP-12-UST1-4	15-25	SA	B		Qd	Qd		VOCs/metal monitoring, SVOC evaluation
P6-MW-01	23-28	SA						Groundwater elevation monitoring
P6-SB-07	15-20	SA				Qd	A	PFAS monitoring
P6-SB-18	3-8	SA						Groundwater elevation monitoring
P6-SB-21	3-8	SA						Groundwater elevation monitoring
Deep Overburden and Weathered Bedrock								
MW-13-52	70-80	SA		B				Lower 1,4-dioxane sentinel
MW-13-53	73-83	SA						Lower 1,4-dioxane sentinel
MW-21-141	72-77	SA		SA				Lower 1,4-dioxane sentinel
Bedrock								
MW-04-01(6)	78-88	SA		B				Bedrock sentinel
MW-04-04R	82-110	SA		B			A	Bedrock sentinel
MW-04-06R	74-99.5	SA		B			A	Bedrock sentinel
MW-12-03	57-80	SA						Groundwater elevation monitoring
MW-13-50	85-107	SA		B				Bedrock sentinel
Storm Sewer								
Osborn-MH-1	-	-					Q	PFAS sewer monitoring
Verlinden-MH-1	-	-						PFAS sewer monitoring
Verlinden-MH-2	-	-						PFAS sewer monitoring
Verlinden-MH-3	-	-						PFAS sewer monitoring
Verlinden-MH-4	-	-						PFAS sewer monitoring
Verlinden-MH-5	-	-					Q	PFAS sewer monitoring
MichAve-MH-3	-	-					Q	PFAS sewer monitoring
MichAve-MH-4	-	-						PFAS sewer monitoring

Notes:

* Site wide gauging to alternate between semi-annual events to account for seasonal variability. Semi-annual gauging includes all wells sampled semi-annually.

** Select metals includes arsenic, nickel, lead, vanadium, chromium, and copper.

***TAL metals defined in Table 3 of the Quality Assurance Project Plan (ARCADIS 2011b).

ft bgs = feet below ground surface

Q = quarterly

SA = semi-annual

A = annual

B = biennial (starting 2nd quarter of 2020)

Qd = Quadrennial

Table 2
Summary of Groundwater Analytical Results - 2024
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name: Sample Depth (ft. bgs):	Part 201 Residential Drinking Water	Part 201 Groundwater Surface Water Interface	Units	CH-14-RO 05/22/24 CH-14-RO 7-12	MW-01(2) 05/17/24 MW-01(2) 10-20	MW-02-02(3) 05/21/24 MW-02-02(3) 74-84	MW-02-02(6) 05/23/24 MW-02-02(6) 35-45	MW-02-04(3) 05/21/24 MW-02-04(3) 76-86	MW-03-05 05/23/24 MW-03-05 35-45	MW-03-06 05/23/24 MW-03-06 30-40	MW-04-01(6) 05/22/24 MW-04-01(6) 78-88	MW-04-04R 05/22/24 MW-04-04R 98-108	MW-04-05(6) 05/23/24 MW-04-05(6) 20-30	MW-04-05(6) 11/20/24 MW-04-05(6)_112024 20-30	MW-04-06R 05/22/24 MW-04-06R 74-99.5	MW-05(3) 05/21/24 MW-05(3) 10-15	MW-12-01 05/24/24 MW-12-01 87-110	MW-12-02 05/24/24 MW-12-02 87-110	MW-12-05R 05/20/24 MW-12-05R 100-112	MW-12-06 05/24/24 MW-12-06 80.6-99.5	MW-12-09 05/16/24 MW-12-09 14-19	MW-12-10R 05/22/24 MW-12-10R 10-15	MW-12-11 05/22/24 MW-12-11 13-18	MW-12-12 05/22/24 MW-12-12 13-18	MW-12-12 11/14/24 MW-12-12_11142 13-18
Field Parameters																									
pH	6.5 to 8.5	6.5 to 9.0	s.u.	7.22	6.78	6.74	6.79	6.86	7.82	6.73	6.79	6.88	7.38	7.53	7.23	7.86	7.29	7.93	10.28	7.49	7.06	6.85	6.69	7.36	7.21
Conductivity	- -	- -	mS/cm	1.024	3.719	1.832	7.583	3.767	1.591	8.646	0.934	1.054	2.594	1.734	6.21	0.561	1.492	0.692	0.449	0.762	1.967	2.395	3.83	1.228	1.273
Turbidity	- -	- -	NTU	8.11	5.62	219	19	695.67	49	14	111	177	4.18	5.56	221	12.02	141	24.72	33.14	132.63	3.64	192.83	550.98	221.52	10.16
Dissolved oxygen (DO)	- -	- -	mg/L	0.15	0	0.5	0.24	1.24	0.73	0.2	0.26	0.35	-0.01	0	0.2	3.19	0.29	0.22	2.19	9.93	-0.01	-0.23	-0.08	-0.01	0.91
Temperature	- -	- -	Deg C	16.1	14.3	18.5	23.6	15.4	19.1	19.5	19.9	19.9	15.2	12.3	19.5	15.8	14.1	16.8	20.8	18.6	13.5	15.5	14	16.8	15.4
Oxidation reduction potential (ORP)	- -	- -	millivolts	73.9	77.8	-40.9	-77.4	-51.8	-42.5	-56.6	-52.8	-88.1	-90	-91.9	-171.6	100.4	-163.7	-203	41	96.4	4.7	-6.5	-56.4	44.2	60.1
Volatile Organics (via EPA Method SW5030C/8260C)																									
1,1-Dichloroethane	880	740	µg/L	NA	< 1	NA	< 1	NA	< 1	< 1 [< 1]	NA	NA	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	**5 [5]**	NA	NA	NA	NA
1,1-Dichloroethene	7.0	130	µg/L	NA	< 1	NA	< 1	NA	< 1	< 1 [< 1]	NA	NA	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA
1,1,1-Trichloroethane	200	89	µg/L	NA	< 1	NA	< 1	NA	< 1	< 1 [< 1]	NA	NA	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA
1,1,1,2-Tetrachloroethane	77	- -	µg/L	NA	< 1	NA	< 1	NA	< 1	< 1 [< 1]	NA	NA	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA
1,1,2-Trichloroethane	5.0	330	µg/L	NA	< 1	NA	< 1	NA	< 1	< 1 [< 1]	NA	NA	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	8.5	78	µg/L	NA	< 1	NA	< 1	NA	< 1	< 1 [< 1]	NA	NA	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane (DBCP)	0.2	- -	µg/L	NA	< 5	NA	< 5	NA	< 5	< 5 [< 5]	NA	NA	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7	µg/L	NA	< 1	NA	< 1	NA	< 1	< 1 [< 1]	NA	NA	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA
1,2-Dichlorobenzene	600	13	µg/L	NA	< 1	NA	< 1	NA	< 1	< 1 [< 1]	NA	NA	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA
1,2-Dichloroethane	5.0	360	µg/L	NA	< 1	NA	< 1	NA	< 1	< 1 [< 1]	NA	NA	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA
1,2-Dichloropropane	5.0	230	µg/L	NA	< 1	NA	< 1	NA	< 1	< 1 [< 1]	NA	NA	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA
1,2,3-Trichlorobenzene	- -	- -	µg/L	NA	< 5	NA	< 5	NA	< 5	< 5 [< 5]	NA	NA	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA
1,2,3-Trichloropropane	42	- -	µg/L	NA	< 1	NA	< 1	NA	< 1	< 1 [< 1]	NA	NA	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA
1,2,3-Trimethylbenzene	- -	- -	µg/L	NA	< 1	NA	< 1	NA	< 1	< 1 [< 1]	NA	NA	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA
1,2,4-Trichlorobenzene	70	99	µg/L	NA	< 5	NA	< 5	NA	< 5	< 5 [< 5]	NA	NA	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA
1,2,4-Trimethylbenzene	63	17	µg/L	NA	< 1	NA	< 1	NA	< 1	< 1 [< 1]	NA	NA	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA
1,3-Dichlorobenzene	6.6	28	µg/L	NA	< 1	NA	< 1	NA	< 1	< 1 [< 1]	NA	NA	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA
1,3,5-Trimethylbenzene	72	45	µg/L	NA	< 1	NA	< 1	NA	< 1	< 1 [< 1]	NA	NA	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA
1,4-Dichlorobenzene	75	17	µg/L	NA	< 1	NA	< 1	NA	< 1	< 1 [< 1]	NA	NA	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA
1,4-Dioxane	7.2	280	µg/L	NA	NA	< 1	30	6	< 1	**5 [6]**	< 1	< 1	NA	NA	< 1 [< 1]	NA	< 0.20*	**0.92* [0.89*]**	**0.71***	**0.11 J***	< 1 [< 1]	NA	NA	NA	NA
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200	µg/L	NA	< 25	NA	< 25	NA	< 25	< 25 [< 25]	NA	NA	< 25	< 25 [< 25]	NA	< 25	NA	NA	NA	NA	< 25 [< 25]	NA	NA	NA	NA
2-Hexanone	1,000	- -	µg/L	NA	< 50	NA	< 50	NA	< 50	< 50 [< 50]	NA	NA	< 50	< 50 [< 50]	NA	< 50	NA	NA	NA	NA	< 50 [< 50]	NA	NA	NA	NA
2-Methylnaphthalene	260	19	µg/L	NA	< 5	NA	< 5	NA	< 5	< 5 [< 5]	NA	NA	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA
2-Phenylbutane (sec-Butylbenzene)	80	- -	µg/L	NA	< 1	NA	< 1	NA	< 1	< 1 [< 1]	NA	NA	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	- -	µg/L	NA	< 50	NA	< 50	NA	< 50	< 50 [< 50]	NA	NA	< 50	< 50 [< 50]	NA	< 50	NA	NA	NA	NA	< 50 [< 50]	NA	NA	NA	NA
Acetone	730	1,700	µg/L	NA	< 50	NA	< 50	NA	< 50	< 50 [< 50]	NA	NA	< 50	< 50 [< 50]	NA	< 50	NA	NA	NA	NA	< 50 [< 50]	NA	NA	NA	NA
Acrylonitrile	2.6	2.0	µg/L	NA	< 2	NA	< 2	NA	< 2	< 2 [< 2]	NA	NA	< 2	< 2 [< 2]	NA	< 2	NA	NA	NA	NA	< 2 [< 2]	NA	NA	NA	NA
Benzene	5.0	200	µg/L	NA	< 1	NA	< 1	NA	< 1	< 1 [< 1]	NA	NA	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA
Bromobenzene	18	- -	µg/L	NA	< 1	NA	< 1	NA	< 1	< 1 [< 1]	NA	NA	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA
Bromodichloromethane	80	- -	µg/L	NA	< 1	NA	< 1	NA	< 1	< 1 [< 1]	NA	NA	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA
Bromoform	80	- -	µg/L	NA	< 1	NA	< 1	NA	< 1	< 1 [< 1]	NA	NA	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA
Bromomethane (Methyl bromide)	10	5.0	µg/L	NA	< 5	NA	< 5	NA	< 5	< 5 [< 5]	NA	NA	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA
Carbon disulfide	800	- -	µg/L	NA	< 5	NA	< 5	NA	< 5	< 5 [< 5]	NA	NA	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA
Carbon tetrachloride	5.0	38	µg/L	NA	< 1	NA	< 1	NA	< 1	< 1 [< 1]	NA	NA	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA
Chlorobenzene	100	25	µg/L	NA	< 1	NA	< 1	NA	< 1	< 1 [< 1]	NA	NA	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA
Chlorobromomethane	- -	- -	µg/L	NA	< 1	NA	< 1	NA	< 1	< 1 [< 1]	NA	NA	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA
Chloroethane	430	1,100	µg/L	NA	< 5	NA	< 5	NA	< 5	< 5 [< 5]	NA	NA	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA
Chloroform (Trichloromethane)	80	350	µg/L	NA	< 1	NA	< 1	NA	< 1	< 1 [< 1]	NA	NA	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA
Chloromethane (Methyl chloride)	260	- -	µg/L	NA	< 5	NA	< 5	NA	< 5	< 5 [< 5]	NA	NA	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA
cis-1,2-Dichloroethene	70	620	µg/L	NA	< 1	NA	< 1	NA	< 1	< 1 [< 1]	NA	NA	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA
cis-1,3-Dichloropropene	- -	- -	µg/L	NA	< 1	NA	< 1	NA	< 1	< 1 [< 1]	NA	NA	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA
Cymene (p-Isopropyltoluene)	- -	- -	µg/L	NA	< 5	NA	< 5	NA	< 5	< 5 [< 5]	NA	NA	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA
Dibromochloromethane	80	- -	µg/L	NA	< 5	NA	< 5	NA	< 5	< 5 [< 5]	NA	NA	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA
Dibromomethane	80	- -	µg/L	NA	< 5	NA	< 5	NA	< 5	< 5 [< 5]	NA	NA	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA
Dichlorodifluoromethane (CFC-12)	1,700	- -	µg/L	NA	< 5	NA	< 5	NA	< 5	< 5 [< 5]	NA	NA	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA
Ethyl ether	10	- -	µg/L	NA	< 10	NA	< 10	NA	< 10	< 10 [< 10]	NA	NA	< 10	< 10 [< 10]	NA	< 10	NA	NA	NA	NA	< 10 [< 10]	NA	NA	NA	NA
Ethylbenzene	74	18	µg/L	NA	< 1	NA	< 1	NA	< 1	< 1 [< 1]	NA	NA	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA
Hexachloroethane	7.3	6.7	µg/L	NA	< 5	NA	< 5	NA	< 5	< 5 [< 5]	NA	NA	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA
Iodomethane	- -	- -	µg/L	NA	< 1	NA	< 1	NA	< 1	< 1 [< 1]	NA	NA	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA
Isopropyl benzene	800	28	µg/L	NA	< 5	NA	< 5	NA	< 5	< 5 [< 5]	NA	NA	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA
Methyl tert butyl ether (MTBE)	40	7,100	µg/L	NA	**10**	NA	< 5	NA	< 5	< 5 [< 5]	NA	NA	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA
Methylene chloride	5.0	1,500	µg/L	NA	< 5	NA	< 5	NA	< 5	< 5 [< 5]	NA	NA	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA
Naphthalene	520	11	µg/L	NA	< 5	NA	< 5	NA	< 5	< 5 [< 5]	NA	NA	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA
N-Butylbenzene	80	- -	µg/L	NA	< 1	NA	< 1	NA	< 1	< 1 [< 1]	NA	NA	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA
N-Propylbenzene	80	- -	µg/L	NA	< 1	NA	< 1	NA	< 1	< 1 [< 1]	NA	NA	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA
Styrene	100	80	µg/L	NA	< 1	NA	< 1	NA	< 1	< 1 [< 1]	NA	NA	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA
tert-Butylbenzene	80	- -	µg/L	NA	< 1	NA	< 1	NA	< 1	< 1 [< 1]	NA	NA	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA
Tetrachloroethene	5.0	60	µg/L	NA	< 1	NA	< 1	NA	< 1	< 1 [< 1]	NA	NA	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA
Tetrahydrofuran	95	11,000	µg/L	NA	< 90	NA	< 90	NA	< 90	< 90 [< 90]	NA	NA	< 90	< 90 [< 90]	NA	< 90	NA	NA	NA	NA	< 90 [< 90]	NA	NA	NA	NA
Toluene	790	270	µg/L	NA	< 1	NA	< 1	NA	< 1	< 1 [< 1]	NA	NA	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA
trans-1,2-Dichloroethene	100	1,500	µg/L	NA	< 1	NA	< 1	NA	< 1	< 1 [< 1]	NA	NA	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA
trans-1,3-Dichloropropene	- -	- -	µg/L	NA	< 1	NA	< 1	NA	< 1	< 1 [< 1]	NA	NA	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA
trans-1,4-Dichloro-2-butene	- -	- -	µg/L	NA	< 1	NA	< 1	NA	< 1	< 1 [< 1]	NA	NA	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA
Trichloroethene	5.0	200	µg/L	NA	< 1	NA	< 1	NA	< 1	< 1 [< 1]	NA	NA	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA
Trichlorofluoromethane (CFC-11)	2,600	- -	µg/L	NA	< 1	NA	< 1	NA	< 1	< 1 [< 1]	NA	NA	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA
Vinyl chloride	2.0	13	µg/L	NA	< 1	NA	< 1	NA	< 1	**11 [11]**	NA	NA	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA
m&p-Xylene	280	49	µg/L	NA	< 2	NA	< 2	NA	< 2	< 2 [< 2]	NA	NA	< 2	< 2 [< 2]	NA	< 2	NA	NA	NA	NA	< 2 [< 2]	NA	NA	NA	NA
o-Xylene	280	49	µg/L	NA	< 1	NA	< 1	NA	< 1	< 1 [< 1]	NA	NA	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA
Xylenes (total)	280	49	µg/L	NA	< 2	NA	< 2	NA	< 2	< 2 [< 2]	NA	NA	< 2	< 2 [< 2]	NA	< 2	NA	NA	NA	NA	< 2 [< 2]	NA	NA	NA	NA

See notes on last page.

Table 2
Summary of Groundwater Analytical Results - 2024
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name: Sample Depth (ft. bgs):	Part 201 Residential Drinking Water	Part 201 Groundwater Surface Water Interface	Units	CH-14-RO 05/22/24 CH-14-RO 7-12	MW-01(2) 05/17/24 MW-01(2) 10-20	MW-02-02(3) 05/21/24 MW-02-02(3) 74-84	MW-02-02(6) 05/23/24 MW-02-02(6) 35-45	MW-02-04(3) 05/21/24 MW-02-04(3) 76-86	MW-03-05 05/23/24 MW-03-05 35-45	MW-03-06 05/23/24 MW-03-06 30-40	MW-04-01(6) 05/22/24 MW-04-01(6) 78-88	MW-04-04R 05/22/24 MW-04-04R 98-108	MW-04-05(6) 05/23/24 MW-04-05(6) 20-30	MW-04-05(6) 11/20/24 MW-04-05(6)_112024 20-30	MW-04-06R 05/22/24 MW-04-06R 74-99.5	MW-05(3) 05/21/24 MW-05(3) 10-15	MW-12-01 05/24/24 MW-12-01 87-110	MW-12-02 05/24/24 MW-12-02 87-110	MW-12-05R 05/20/24 MW-12-05R 100-112	MW-12-06 05/24/24 MW-12-06 80.6-99.5	MW-12-09 05/16/24 MW-12-09 14-19	MW-12-10R 05/22/24 MW-12-10R 10-15	MW-12-11 05/22/24 MW-12-11 13-18	MW-12-12 05/22/24 MW-12-12 13-18	MW-12-12 11/14/24 MW-12-12_11142 13-18
Semi-Volatile Organics (via EPA Method SW5030C/8270D)																										
1,2-Dichlorobenzene	600	13	µg/L	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Diphenylhydrazine	- -	- -	µg/L	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	70	99	µg/L	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	6.6	28	µg/L	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	75	17	µg/L	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	- -	- -	µg/L	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	73	11	µg/L	NA	NA	NA	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	370	380	µg/L	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	- -	- -	µg/L	NA	NA	NA	< 25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	7.7	- -	µg/L	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	730	- -	µg/L	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	120	5.0	µg/L	NA	NA	NA	< 4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	- -	- -	µg/L	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	1,800	- -	µg/L	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorophenol	45	18	µg/L	NA	NA	NA	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	260	19	µg/L	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	- -	- -	µg/L	NA	NA	NA	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitroaniline	- -	- -	µg/L	NA	NA	NA	< 25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	20	- -	µg/L	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3&4-Methylphenol	- -	- -	µg/L	NA	NA	NA	< 20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	1.1	0.3	µg/L	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	- -	- -	µg/L	NA	NA	NA	< 25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	20	- -	µg/L	NA	NA	NA	< 20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Bromophenyl phenyl ether	- -	- -	µg/L	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	150	7.4	µg/L	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloroaniline	- -	- -	µg/L	NA	NA	NA	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl phenyl ether	- -	- -	µg/L	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	- -	- -	µg/L	NA	NA	NA	< 25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrophenol	- -	- -	µg/L	NA	NA	NA	< 25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	1,300	38	µg/L	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	52	- -	µg/L	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	43	- -	µg/L	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	2.1	- -	µg/L	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	5.0	- -	µg/L	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1.5	- -	µg/L	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	1.0	- -	µg/L	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	1.0	- -	µg/L	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethoxy)methane	- -	- -	µg/L	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl)ether	2.0	1.0	µg/L	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate (DEHP)	6.0	14	µg/L	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butyl benzylphthalate (BBP)	1,200	67	µg/L	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	1.6	- -	µg/L	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	2.0	- -	µg/L	NA	NA	NA	< 2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	- -	4.0	µg/L	NA	NA	NA	< 4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	5,500	110	µg/L	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	73,000	- -	µg/L	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylphthalate (DBP)	880	9.7	µg/L	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate (DnOP)	130	- -	µg/L	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	210	1.6	µg/L	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	880	12	µg/L	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	1.0	0.2	µg/L	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	15	0.053	µg/L	NA	NA	NA	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	50	- -	µg/L	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	7.3	6.7	µg/L	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	2.0	- -	µg/L	NA	NA	NA	< 2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isophorone	770	1,300	µg/L	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	520	11	µg/L	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene	3.4	180	µg/L	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodi-n-propylamine	5.0	- -	µg/L	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	270	- -	µg/L	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	1.0	- -	µg/L	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	52	2.0	µg/L	NA	NA	NA	< 2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	4,400	450	µg/L	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	140	- -	µg/L	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 2
Summary of Groundwater Analytical Results - 2024
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name: Sample Depth (ft. bgs):	Part 201 Residential Drinking Water	Part 201 Groundwater Surface Water Interface	Units	CH-14-RO 05/22/24 CH-14-RO 7-12	MW-01(2) 05/17/24 MW-01(2) 10-20	MW-02-02(3) 05/21/24 MW-02-02(3) 74-84	MW-02-02(6) 05/23/24 MW-02-02(6) 35-45	MW-02-04(3) 05/21/24 MW-02-04(3) 76-86	MW-03-05 05/23/24 MW-03-05 35-45	MW-03-06 05/23/24 MW-03-06 30-40	MW-04-01(6) 05/22/24 MW-04-01(6) 78-88	MW-04-04R 05/22/24 MW-04-04R 98-108	MW-04-05(6) 05/23/24 MW-04-05(6) 20-30	MW-04-05(6) 11/20/24 MW-04-05(6)_112024 20-30	MW-04-06R 05/22/24 MW-04-06R 74-99.5	MW-05(3) 05/21/24 MW-05(3) 10-15	MW-12-01 05/24/24 MW-12-01 87-110	MW-12-02 05/24/24 MW-12-02 87-110	MW-12-05R 05/20/24 MW-12-05R 100-112	MW-12-06 05/24/24 MW-12-06 80.6-99.5	MW-12-09 05/16/24 MW-12-09 14-19	MW-12-10R 05/22/24 MW-12-10R 10-15	MW-12-11 05/22/24 MW-12-11 13-18	MW-12-12 05/22/24 MW-12-12 13-18	MW-12-12 11/14/24 MW-12-12_11142 13-18
Per- and Polyfluoroalkyl Substances (PFAS) (via EPA Method 537 Modified)																									
11Cl-PF3OUdS (F-53B Minor)	- -	- -	ng/L	< 370	NA	NA	NA	< 7.5	NA	NA	NA	< 6.7	< 7.5	NA	< 6.7 [< 6.7]	NA	NA	NA	NA	NA	< 7.7 [< 7.7]	< 7.5	< 8.0	< 7.9	< 7.7
4:2 FTS	- -	- -	ng/L	< 370 Q	NA	NA	NA	< 7.5	NA	NA	NA	< 6.7	< 7.5 Q	NA	< 6.7 [< 6.7]	NA	NA	NA	NA	NA	< 7.7 Q [< 7.7 Q]	< 7.5 Q	< 8.0	< 7.9 Q	< 7.7 Q
6:2 FTS	- -	- -	ng/L	< 370 QS	NA	NA	NA	< 7.5	NA	NA	NA	< 6.7	< 7.5 Q	NA	< 6.7 [< 6.7]	NA	NA	NA	NA	NA	< 7.7 Q [< 7.7 Q]	< 7.5 Q	< 8.0	< 7.9 Q	< 7.7 Q
8:2 FTS	- -	- -	ng/L	< 370 S	NA	NA	NA	< 7.5	NA	NA	NA	< 6.7	< 7.5	NA	< 6.7 [< 6.7]	NA	NA	NA	NA	NA	< 7.7 [< 7.7]	< 7.5	< 8.0	< 7.9 Q	< 7.7
9Cl-PF3ONS (F-53B Major)	- -	- -	ng/L	< 370	NA	NA	NA	< 7.5	NA	NA	NA	< 6.7	< 7.5	NA	< 6.7 [< 6.7]	NA	NA	NA	NA	NA	< 7.7 [< 7.7]	< 7.5	< 8.0	< 7.9	< 7.7
ADONA	- -	- -	ng/L	< 370	NA	NA	NA	< 7.5	NA	NA	NA	< 6.7	< 7.5	NA	< 6.7 [< 6.7]	NA	NA	NA	NA	NA	< 7.7 [< 7.7]	< 7.5	< 8.0	< 7.9	< 7.7
Hexafluoropropylene oxide dimer acid (HFPO-DA) (GenX)	370	- -	ng/L	< 370	NA	NA	NA	< 7.5	NA	NA	NA	< 6.7	< 7.5	NA	< 6.7 [< 6.7]	NA	NA	NA	NA	NA	< 7.7 [< 7.7]	< 7.5	< 8.0	< 7.9	< 7.7
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	- -	- -	ng/L	< 370 S	NA	NA	NA	< 7.5	NA	NA	NA	< 6.7	< 7.5	NA	< 6.7 [< 6.7]	NA	NA	NA	NA	NA	< 7.7 [< 7.7]	< 7.5	< 8.0	< 7.9	< 7.7
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA	- -	- -	ng/L	< 370 S	NA	NA	NA	< 7.5	NA	NA	NA	< 6.7	< 7.5	NA	< 6.7 [< 6.7]	NA	NA	NA	NA	NA	< 7.7 [< 7.7]	< 7.5	< 8.0	< 7.9	< 7.7
Perfluorobutanesulfonic acid (PFBS)	420	670,000	ng/L	**120 J**	NA	NA	NA	**1.9 J**	NA	NA	NA	< 3.3	< 3.7	NA	< 3.3 [< 3.3]	NA	NA	NA	NA	NA	**2.0 J [2.1 J]**	< 3.7	< 4.0	< 4.0	**2.5 J**
Perfluorobutanoic acid (PFBA)	- -	- -	ng/L	< 180 S	NA	NA	NA	**8.7**	NA	NA	NA	**1.1 J**	**15**	NA	**3.8 [3.4]**	NA	NA	NA	NA	NA	**12 [12]**	**7**	**6.8**	**43**	**63**
Perfluorodecanesulfonic acid (PFDS)	- -	- -	ng/L	< 180 S	NA	NA	NA	< 3.7	NA	NA	NA	< 3.3	< 3.7	NA	< 3.3 [< 3.3]	NA	NA	NA	NA	NA	< 3.8 [< 3.8]	< 3.7	< 4.0	< 4.0	< 3.8
Perfluorodecanoic acid (PFDA)	- -	- -	ng/L	< 180 S	NA	NA	NA	< 3.7	NA	NA	NA	< 3.3	< 3.7	NA	< 3.3 [< 3.3]	NA	NA	NA	NA	NA	< 3.8 [< 3.8]	< 3.7	< 4.0	**5.3**	**9.6**
Perfluorododecanoic acid (PFDoA)	- -	- -	ng/L	< 180	NA	NA	NA	< 3.7	NA	NA	NA	< 3.3	< 3.7	NA	< 3.3 [< 3.3]	NA	NA	NA	NA	NA	< 3.8 [< 3.8]	< 3.7	< 4.0	< 4.0	< 3.8
Perfluoroheptanesulfonic Acid (PFHpS)	- -	- -	ng/L	**400 S**	NA	NA	NA	< 3.7	NA	NA	NA	< 3.3	< 3.7	NA	< 3.3 [< 3.3]	NA	NA	NA	NA	NA	< 3.8 [< 3.8]	< 3.7	< 4.0	< 4.0	< 3.8
Perfluoroheptanoic acid (PFHpA)	- -	- -	ng/L	**23 J**	NA	NA	NA	< 3.7	NA	NA	NA	< 3.3	**21**	NA	< 3.3 [< 3.3]	NA	NA	NA	NA	NA	**8.5 [8]**	**3.5 J**	< 4.0	**43**	**70**
Perfluorohexanesulfonic acid (PFHxS)	51	210	ng/L	**1900 S**	NA	NA	NA	< 3.7	NA	NA	NA	< 3.3	**2.0 J**	NA	< 3.3 [< 3.3]	NA	NA	NA	NA	NA	**4 [3.8]**	**1.7 J**	< 4.0	**2.0 J**	**2.4 J**
Perfluorohexanoic acid (PFHxA)	400,000	- -	ng/L	**49 JS**	NA	NA	NA	**5**	NA	NA	NA	< 3.3	**29**	NA	< 3.3 [< 3.3]	NA	NA	NA	NA	NA	**11 [13]**	< 3.7	< 4.0	**140**	**170**
Perfluorononanesulfonic acid (PFNS)	- -	- -	ng/L	< 180	NA	NA	NA	< 3.7	NA	NA	NA	< 3.3	< 3.7	NA	< 3.3 [< 3.3]	NA	NA	NA	NA	NA	< 3.8 [< 3.8]	< 3.7	< 4.0	< 4.0	< 3.8
Perfluorononanoic acid (PFNA)	6.0	30	ng/L	< 180	NA	NA	NA	< 3.7	NA	NA	NA	< 3.3	**0.68 J**	NA	< 3.3 [< 3.3]	NA	NA	NA	NA	NA	**0.58 J [0.58 J]**	**0.66 J**	< 4.0	**3.9 J**	**6.7**
Perfluorooctane Sulfonamide (PFOSA)	- -	- -	ng/L	< 180 S	NA	NA	NA	< 3.7	NA	NA	NA	< 3.3	< 3.7	NA	< 3.3 [< 3.3]	NA	NA	NA	NA	NA	< 3.8 [< 3.8]	< 3.7	< 4.0	< 4.0	< 3.8
Perfluorooctane sulfonic acid (PFOS)	16	12	ng/L	**11000 S**	NA	NA	NA	< 3.7	NA	NA	NA	< 3.3	< 3.7	NA	< 3.3 [< 3.3]	NA	NA	NA	NA	NA	**2.8 J [3.7 J]**	**8.7**	< 4.0	**19**	**24**
Perfluorooctanoic acid (PFOA)	8.0	170	ng/L	**130 JS**	NA	NA	NA	< 3.7	NA	NA	NA	< 3.3	**32**	NA	< 3.3 [< 3.3]	NA	NA	NA	NA	NA	**19 [19]**	**7.6**	< 4.0	**98**	**150**
Perfluoropentanesulfonic acid (PFPeS)	- -	- -	ng/L	**390 S**	NA	NA	NA	< 3.7	NA	NA	NA	< 3.3	< 3.7	NA	< 3.3 [< 3.3]	NA	NA	NA	NA	NA	**< 3.8 [0.66 J]**	< 3.7	< 4.0	< 4.0	< 3.8
Perfluoropentanoic acid (PFPeA)	- -	- -	ng/L	< 180	NA	NA	NA	**9.4**	NA	NA	NA	< 3.3	**26**	NA	**1.0 J [< 3.3]**	NA	NA	NA	NA	NA	**9.1 [9.7]**	**4.3**	< 4.0	**75**	**100**
Perfluorotetradecanoic acid (PFTeA)	- -	- -	ng/L	< 180	NA	NA	NA	< 3.7	NA	NA	NA	< 3.3	< 3.7	NA	< 3.3 [< 3.3]	NA	NA	NA	NA	NA	< 3.8 [< 3.8]	< 3.7	< 4.0	< 4.0	< 3.8
Perfluorotridecanoic Acid (PFTriA)	- -	- -	ng/L	< 180	NA	NA	NA	< 3.7	NA	NA	NA	< 3.3	< 3.7	NA	< 3.3 [< 3.3]	NA	NA	NA	NA	NA	< 3.8 [< 3.8]	< 3.7	< 4.0	< 4.0	< 3.8
Perfluoroundecanoic Acid (PFUnA)	- -	- -	ng/L	< 180 S	NA	NA	NA	< 3.7	NA	NA	NA	< 3.3	< 3.7	NA	< 3.3 [< 3.3]	NA	NA	NA	NA	NA	< 3.8 [< 3.8]	< 3.7	< 4.0	< 4.0	< 3.8
Metals (EPA Method 200.8, Standard Methods 3500-Cr)																									
Arsenic	0.01	0.01	mg/L	< 0.002	NA	NA	NA	**0.083**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic (dissolved)	0.01	0.01	mg/L	NA	NA	NA	NA	**0.014**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium III (trivalent)	0.1	0.16	mg/L	**8.75**	NA	NA	NA	**0.011**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium III (trivalent) (dissolved)	0.1	0.16	mg/L	NA	NA	NA	NA	< 0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium VI (hexavalent)	0.1	0.011	mg/L	**8.35**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1.0	0.02	mg/L	< 0.005	NA	NA	NA	**0.007**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper (dissolved)	1.0	0.02	mg/L	NA	NA	NA	NA	< 0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.004	0.044	mg/L	< 0.003	NA	NA	NA	**0.005**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead (dissolved)	0.004	0.044	mg/L	NA	NA	NA	NA	< 0.003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	0.1	0.12	mg/L	**0.009**	NA	NA	NA	**0.022**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel (dissolved)	0.1	0.12	mg/L	NA	NA	NA	NA	**0.009**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	0.0045	0.027	mg/L	< 0.005	NA	NA	NA	**0.009**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium (dissolved)	0.0045	0.027	mg/L	NA	NA	NA	NA	< 0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See notes on last page.

Table 2
Summary of Groundwater Analytical Results - 2024
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name: Sample Depth (ft. bgs):	Part 201 Residential Drinking Water	Part 201 Groundwater Surface Water Interface	Units	MW-12-13 05/23/24 MW-12-13 18.5-23.5	MW-12-13 11/18/24 MW-12-13_11182 18.5-23.5	MW-12-18 05/16/24 MW-12-18_05162 28-33	MW-12-20 05/21/24 MW-12-20 75-80	MW-12-21 02/13/24 MW-12-21 70-75	MW-12-21 05/16/24 MW-12-21 70-75	MW-12-21 11/18/24 MW-12-21_11182 70-75	MW-13-22 02/13/24 MW-13-22 89-94	MW-13-22 05/16/24 MW-13-22 89-94	MW-13-22 11/18/24 MW-13-22_11182 89-94	MW-13-23 05/21/24 MW-13-23 69-74	MW-13-24 05/21/24 MW-13-24 69-74	MW-13-25 05/21/24 MW-13-25 67-72	MW-13-28 05/20/24 MW-13-28 99-115.5	MW-13-29 05/16/24 MW-13-29 68-73	MW-13-29 11/18/24 MW-13-29_11182 68-73	MW-13-32 05/22/24 MW-13-32 5-10	MW-13-34 02/13/24 MW-13-34 74-79	MW-13-34 05/16/24 MW-13-34 74-79	MW-13-34 11/18/24 MW-13-34_11182 74-79	MW-13-36R 05/23/24 MW-13-36R 5.5-10.5	MW-13-36R 11/14/24 MW-13-36R_11142 5.5-10.5
Field Parameters																										
pH	6.5 to 8.5	6.5 to 9.0	s.u.	7.42	7.37	NR	6.97	6.93	6.71	6.81	6.92	6.77	6.79	6.52	6.75	6.41	6.84	6.4	6.35	6.89	7.07	6.84	6.92	12.17	12.12
Conductivity	- -	- -	mS/cm	0.55	0.663	NR	1.444	1.879	1.799	1.372	1.457	2.092	1.567	1.7	1.049	1.506	1.787	2.757	2.395	0.909	1.824	2.484	1.932	1.609	2.379
Turbidity	- -	- -	NTU	4.24	7.92	NR	186.67	32.42	14.85	23	109	155.95	53	7.59	110	3.93	169.86	65	3.98	8.29	635	104	63	4.03	1.84
Dissolved oxygen (DO)	- -	- -	mg/L	0.67	0.24	NR	1.18	0.71	0.87	5.08	0	0.18	0.04	0.22	0.46	0.42	0.15	0.23	0.57	0.25	0	0.01	0.04	0.09	0.18
Temperature	- -	- -	Deg C	12	13.8	NR	20	7.1	23.9	14.3	10.6	25.5	14.1	17.4	20.6	21.7	17.5	18.2	14	12.2	11	22.4	13.7	13.1	13.1
Oxidation reduction potential (ORP)	- -	- -	millivolts	141.1	-86.7	NR	-80.6	-118.1	-8.5	-15	-49	-63.7	0.4	110.9	-61.2	-28	-83.4	-18.7	48.6	161.6	-73.4	-112.2	-80.9	-88.1	-96.6
Volatile Organics (via EPA Method SW5030C/8260C)																										
1,1-Dichloroethane	880	740	µg/L	NA	NA	< 1	NA	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA
1,1-Dichloroethene	7.0	130	µg/L	NA	NA	< 1	NA	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA
1,1,1-Trichloroethane	200	89	µg/L	NA	NA	< 1	NA	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA
1,1,1,2-Tetrachloroethane	77	- -	µg/L	NA	NA	< 1	NA	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA
1,1,2-Trichloroethane	5.0	330	µg/L	NA	NA	< 1	NA	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA
1,1,2,2-Tetrachloroethane	8.5	78	µg/L	NA	NA	< 1	NA	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA
1,2-Dibromo-3-chloropropane (DBCP)	0.2	- -	µg/L	NA	NA	< 5	NA	NA	< 5	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7	µg/L	NA	NA	< 1	NA	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA
1,2-Dichlorobenzene	600	13	µg/L	NA	NA	< 1	NA	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA
1,2-Dichloroethane	5.0	360	µg/L	NA	NA	< 1	NA	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA
1,2-Dichloropropane	5.0	230	µg/L	NA	NA	< 1	NA	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA
1,2,3-Trichlorobenzene	- -	- -	µg/L	NA	NA	< 5	NA	NA	< 5	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA
1,2,3-Trichloropropane	42	- -	µg/L	NA	NA	< 1	NA	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA
1,2,3-Trimethylbenzene	- -	- -	µg/L	NA	NA	< 1	NA	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA
1,2,4-Trichlorobenzene	70	99	µg/L	NA	NA	< 5	NA	NA	< 5	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA
1,2,4-Trimethylbenzene	63	17	µg/L	NA	NA	< 1	NA	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA
1,3-Dichlorobenzene	6.6	28	µg/L	NA	NA	< 1	NA	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA
1,3,5-Trimethylbenzene	72	45	µg/L	NA	NA	< 1	NA	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA
1,4-Dichlorobenzene	75	17	µg/L	NA	NA	< 1	NA	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA
1,4-Dioxane	7.2	280	µg/L	NA	NA	NA	< 1	**145**	**157**	**160**	**79 [77]**	**124**	**173 Y**	< 1	< 1	< 1	**4.0***	9	**6**	NA	**97**	**114**	**101 [115]**	NA	NA
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200	µg/L	NA	NA	< 25	NA	NA	< 25	NA	NA	< 25	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 25	NA	NA	NA
2-Hexanone	1,000	- -	µg/L	NA	NA	< 50	NA	NA	< 50	NA	NA	< 50	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 50	NA	NA	NA
2-Methylnaphthalene	260	19	µg/L	NA	NA	< 5	NA	NA	< 5	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA
2-Phenylbutane (sec-Butylbenzene)	80	- -	µg/L	NA	NA	< 1	NA	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	- -	µg/L	NA	NA	< 50	NA	NA	< 50	NA	NA	< 50	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 50	NA	NA	NA
Acetone	730	1,700	µg/L	NA	NA	< 50	NA	NA	< 50	NA	NA	< 50	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 50	NA	NA	NA
Acrylonitrile	2.6	2.0	µg/L	NA	NA	< 2	NA	NA	< 2	NA	NA	< 2	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 2	NA	NA	NA
Benzene	5.0	200	µg/L	NA	NA	< 1	NA	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA
Bromobenzene	18	- -	µg/L	NA	NA	< 1	NA	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA
Bromodichloromethane	80	- -	µg/L	NA	NA	< 1	NA	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA
Bromoform	80	- -	µg/L	NA	NA	< 1	NA	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA
Bromomethane (Methyl bromide)	10	5.0	µg/L	NA	NA	< 5	NA	NA	< 5	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA
Carbon disulfide	800	- -	µg/L	NA	NA	< 5	NA	NA	< 5	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA
Carbon tetrachloride	5.0	38	µg/L	NA	NA	< 1	NA	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA
Chlorobenzene	100	25	µg/L	NA	NA	< 1	NA	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA
Chlorobromomethane	- -	- -	µg/L	NA	NA	< 1	NA	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA
Chloroethane	430	1,100	µg/L	NA	NA	< 5	NA	NA	< 5	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA
Chloroform (Trichloromethane)	80	350	µg/L	NA	NA	< 1	NA	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA
Chloromethane (Methyl chloride)	260	- -	µg/L	NA	NA	< 5	NA	NA	< 5	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA
cis-1,2-Dichloroethene	70	620	µg/L	NA	NA	< 1	NA	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA
cis-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	< 1	NA	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA
Cymene (p-Isopropyltoluene)	- -	- -	µg/L	NA	NA	< 5	NA	NA	< 5	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA
Dibromochloromethane	80	- -	µg/L	NA	NA	< 5	NA	NA	< 5	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA
Dibromomethane	80	- -	µg/L	NA	NA	< 5	NA	NA	< 5	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA
Dichlorodifluoromethane (CFC-12)	1,700	- -	µg/L	NA	NA	< 5	NA	NA	< 5	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA
Ethyl ether	10	- -	µg/L	NA	NA	< 10	NA	NA	< 10	NA	NA	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 10	NA	NA	NA
Ethylbenzene	74	18	µg/L	NA	NA	< 1	NA	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA
Hexachloroethane	7.3	6.7	µg/L	NA	NA	< 5	NA	NA	< 5	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA
Iodomethane	- -	- -	µg/L	NA	NA	< 1	NA	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA
Isopropyl benzene	800	28	µg/L	NA	NA	< 5	NA	NA	< 5	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA
Methyl tert butyl ether (MTBE)	40	7,100	µg/L	NA	NA	< 5	NA	NA	< 5	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA
Methylene chloride	5.0	1,500	µg/L	NA	NA	< 5	NA	NA	< 5	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA
Naphthalene	520	11	µg/L	NA	NA	< 5	NA	NA	< 5	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA
N-Butylbenzene	80	- -	µg/L	NA	NA	< 1	NA	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA
N-Propylbenzene	80	- -	µg/L	NA	NA	< 1	NA	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA
Styrene	100	80	µg/L	NA	NA	< 1	NA	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA
tert-Butylbenzene	80	- -	µg/L	NA	NA	< 1	NA	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA
Tetrachloroethene	5.0	60	µg/L	NA	NA	**1**	NA	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA
Tetrahydrofuran	95	11,000	µg/L	NA	NA	< 90	NA	NA	< 90	NA	NA	< 90	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 90	NA	NA	NA
Toluene	790	270	µg/L	NA	NA	< 1	NA	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA
trans-1,2-Dichloroethene	100	1,500	µg/L	NA	NA	< 1	NA	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA
trans-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	< 1	NA	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA
trans-1,4-Dichloro-2-butene	- -	- -	µg/L	NA	NA	< 1	NA	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA
Trichloroethene	5.0	200	µg/L	NA	NA	< 1	NA	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA
Trichlorofluoromethane (CFC-11)	2,600	- -	µg/L	NA	NA	< 1	NA	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA
Vinyl chloride	2.0	13	µg/L	NA	NA	< 1	NA	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA
m&p-Xylene	280	49	µg/L	NA	NA	< 2	NA	NA	< 2	NA	NA	< 2	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 2	NA	NA	NA
o-Xylene	280	49	µg/L	NA	NA	< 1	NA	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA
Xylenes (total)	280	49	µg/L	NA	NA	< 2	NA	NA	< 2	NA	NA	< 2	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 2	NA	NA	NA

See notes on last page.

Table 2
Summary of Groundwater Analytical Results - 2024
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID:	Part 201 Residential Drinking Water	Part 201 Groundwater Surface Water Interface	Units	MW-12-13	MW-12-13	MW-12-18	MW-12-20	MW-12-21	MW-12-21	MW-12-21	MW-13-22	MW-13-22	MW-13-22	MW-13-23	MW-13-24	MW-13-25	MW-13-28	MW-13-29	MW-13-29	MW-13-32	MW-13-34	MW-13-34	MW-13-34	MW-13-36R	MW-13-36R
Date Collected:				05/23/24	11/18/24	05/16/24	05/21/24	02/13/24	05/16/24	11/18/24	02/13/24	05/16/24	11/18/24	05/21/24	05/21/24	05/21/24	05/20/24	05/16/24	11/18/24	05/22/24	02/13/24	05/16/24	11/18/24	05/23/24	11/14/24
Sample Name:				MW-12-13	MW-12-13_11182	MW-12-18_05162	MW-12-20	MW-12-21	MW-12-21	MW-12-21_11182	MW-13-22	MW-13-22	MW-13-22_11182	MW-13-23	MW-13-24	MW-13-25	MW-13-28	MW-13-29	MW-13-29_11182	MW-13-32	MW-13-34	MW-13-34	MW-13-34_11182	MW-13-36R	MW-13-36R_11142
Sample Depth (ft. bgs):				18.5-23.5	18.5-23.5	28-33	75-80	70-75	70-75	70-75	89-94	89-94	89-94	69-74	69-74	67-72	99-115.5	68-73	68-73	5-10	74-79	74-79	74-79	5.5-10.5	5.5-10.5
Semi-Volatile Organics (via EPA Method SW5030C/8270D)																									
1,2-Dichlorobenzene	600	13	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA	NA
1,2-Diphenylhydrazine	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	70	99	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	6.6	28	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	75	17	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA	NA
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA	NA
2,4-Dichlorophenol	73	11	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 10 [< 10]	NA	NA	NA	NA	NA
2,4-Dimethylphenol	370	380	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA	NA
2,4-Dinitrophenol	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 25 [< 25]	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	7.7	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	730	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	120	5.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 4 [< 4]	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA	NA
2-Chloronaphthalene	1,800	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA	NA
2-Chlorophenol	45	18	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 10 [< 10]	NA	NA	NA	NA	NA
2-Methylnaphthalene	260	19	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA	NA
2-Methylphenol	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 10 [< 10]	NA	NA	NA	NA	NA
2-Nitroaniline	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 25 [< 25]	NA	NA	NA	NA	NA
2-Nitrophenol	20	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA	NA
3&4-Methylphenol	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 20 [< 20]	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	1.1	0.3	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA	NA
3-Nitroaniline	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 25 [< 25]	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	20	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 20 [< 20]	NA	NA	NA	NA	NA
4-Bromophenyl phenyl ether	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	150	7.4	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA	NA
4-Chloroaniline	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 10 [< 10]	NA	NA	NA	NA	NA
4-Chlorophenyl phenyl ether	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA	NA
4-Nitroaniline	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 25 [< 25]	NA	NA	NA	NA	NA
4-Nitrophenol	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 25 [< 25]	NA	NA	NA	NA	NA
Acenaphthene	1,300	38	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA	NA
Acenaphthylene	52	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA	NA
Anthracene	43	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA	NA
Benzo(a)anthracene	2.1	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA	NA
Benzo(a)pyrene	5.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1.5	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	1.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	1.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA	NA
bis(2-Chloroethoxy)methane	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA	NA
bis(2-Chloroethyl)ether	2.0	1.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate (DEHP)	6.0	14	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA	NA
Butyl benzylphthalate (BBP)	1,200	67	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA	NA
Chrysene	1.6	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	2.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 2 [< 2]	NA	NA	NA	NA	NA
Dibenzofuran	- -	4.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 4 [< 4]	NA	NA	NA	NA	NA
Diethyl phthalate	5,500	110	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA	NA
Dimethyl phthalate	73,000	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA	NA
Di-n-butylphthalate (DBP)	880	9.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA	NA
Di-n-octyl phthalate (DnOP)	130	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA	NA
Fluoranthene	210	1.6	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA	NA
Fluorene	880	12	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA	NA
Hexachlorobenzene	1.0	0.2	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA	NA
Hexachlorobutadiene	15	0.053	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 10 [< 10]	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	50	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA	NA
Hexachloroethane	7.3	6.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	2.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 2 [< 2]	NA	NA	NA	NA	NA
Isophorone	770	1,300	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA	NA
Naphthalene	520	11	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA	NA
Nitrobenzene	3.4	180	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA	NA
N-Nitrosodi-n-propylamine	5.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	270	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA	NA
Pentachlorophenol	1.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA	NA
Phenanthrene	52	2.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 2 [< 2]	NA	NA	NA	NA	NA
Phenol	4,400	450	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA	NA
Pyrene	140	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA	NA

Table 2
Summary of Groundwater Analytical Results - 2024
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name: Sample Depth (ft. bgs):	Part 201 Residential Drinking Water	Part 201 Groundwater Surface Water Interface	Units	MW-12-13 05/23/24 MW-12-13 18.5-23.5	MW-12-13 11/18/24 MW-12-13_11182 18.5-23.5	MW-12-18 05/16/24 MW-12-18_05162 28-33	MW-12-20 05/21/24 MW-12-20 75-80	MW-12-21 02/13/24 MW-12-21 70-75	MW-12-21 05/16/24 MW-12-21 70-75	MW-12-21 11/18/24 MW-12-21_11182 70-75	MW-13-22 02/13/24 MW-13-22 89-94	MW-13-22 05/16/24 MW-13-22 89-94	MW-13-22 11/18/24 MW-13-22_11182 89-94	MW-13-23 05/21/24 MW-13-23 69-74	MW-13-24 05/21/24 MW-13-24 69-74	MW-13-25 05/21/24 MW-13-25 67-72	MW-13-28 05/20/24 MW-13-28 99-115.5	MW-13-29 05/16/24 MW-13-29 68-73	MW-13-29 11/18/24 MW-13-29_11182 68-73	MW-13-32 05/22/24 MW-13-32 5-10	MW-13-34 02/13/24 MW-13-34 74-79	MW-13-34 05/16/24 MW-13-34 74-79	MW-13-34 11/18/24 MW-13-34_11182 74-79	MW-13-36R 05/23/24 MW-13-36R 5.5-10.5	MW-13-36R 11/14/24 MW-13-36R_11142 5.5-10.5
Per- and Polyfluoroalkyl Substances (PFAS) (via EPA Method 537 Modified)																										
11Cl-PF3OUdS (F-53B Minor)	- -	- -	ng/L	< 7.7	< 6.8	< 7.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 7.6 [< 6.7 H]	< 7.6 H
4:2 FTS	- -	- -	ng/L	< 7.7 Q	< 6.8 Q	< 7.7 Q	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 7.6 Q [< 6.9 Q]	< 7.6 HQ
6:2 FTS	- -	- -	ng/L	< 7.7 Q	< 6.8	< 7.7 UQ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 7.6 Q [< 6.7 HQ	< 7.6 HQ
8:2 FTS	- -	- -	ng/L	< 7.7	< 6.8	< 7.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 7.6 Q [< 6.7 HQ	< 7.6 HQ
9Cl-PF3ONS (F-53B Major)	- -	- -	ng/L	< 7.7	< 6.8	< 7.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 7.6 [< 6.7 H]	< 7.6 H
ADONA	- -	- -	ng/L	< 7.7	< 6.8	< 7.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 7.6 [< 6.7 H]	< 7.6 H
Hexafluoropropylene oxide dimer acid (HFPO-DA) (GenX)	370	- -	ng/L	< 7.7	< 6.8	< 7.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 7.6 [< 6.7 H]	< 7.6 H
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	- -	- -	ng/L	< 7.7	< 6.8	< 7.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**4.4 J [4.8 HJ]**	**5.5 HJ**
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA	- -	- -	ng/L	< 7.7	< 6.8	< 7.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**3.0 J [2.9 HJ]**	**3.5 HJ**
Perfluorobutanesulfonic acid (PFBS)	420	670,000	ng/L	**3.4 J**	< 3.4	**0.80 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**2.5 J [2.3 HJ]**	**3.1 HJ**
Perfluorobutanoic acid (PFBA)	- -	- -	ng/L	**25**	**27**	**7**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**< 3.8 Q [200 HQ]**	< 3.8 HQ
Perfluorodecanesulfonic acid (PFDS)	- -	- -	ng/L	< 3.8	< 3.4	< 3.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 3.8 [< 3.3 H]	< 3.8 H
Perfluorodecanoic acid (PFDA)	- -	- -	ng/L	< 3.8	< 3.4	< 3.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**20 [21 H]**	**22 H**
Perfluorododecanoic acid (PFDoA)	- -	- -	ng/L	< 3.8	< 3.4	< 3.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**< 3.8 [0.46 HJ]**	**0.46 HJ**
Perfluoroheptanesulfonic Acid (PFHpS)	- -	- -	ng/L	< 3.8	< 3.4	< 3.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 3.8 [< 3.3 H]	**0.59 HJ**
Perfluoroheptanoic acid (PFHpA)	- -	- -	ng/L	**25**	**27**	**1.9 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**27 [31 H]**	**27 H**
Perfluorohexanesulfonic acid (PFHxS)	51	210	ng/L	< 3.8	< 3.4	**0.69 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.7 J [2.0 HJ]**	**1.7 HJ**
Perfluorohexanoic acid (PFHxA)	400,000	- -	ng/L	**60**	**51**	**2.9 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**32 [31 H]**	**40 H**
Perfluorononanesulfonic acid (PFNS)	- -	- -	ng/L	< 3.8	< 3.4	< 3.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 3.8 [< 3.3 H]	< 3.8 H
Perfluorononanoic acid (PFNA)	6.0	30	ng/L	< 3.8	< 3.4	< 3.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**11 [11 H]**	**14 H**
Perfluorooctane Sulfonamide (PFOSA)	- -	- -	ng/L	< 3.8	< 3.4	< 3.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**2.6 J [2.5 HJ]**	**3.2 HJ**
Perfluorooctane sulfonic acid (PFOS)	16	12	ng/L	< 3.8	< 3.4	< 3.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**35 [38 H]**	**46 H**
Perfluorooctanoic acid (PFOA)	8.0	170	ng/L	**8.6**	**12**	< 3.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**56 [53 H]**	**53 H**
Perfluoropentanesulfonic acid (PFPeS)	- -	- -	ng/L	< 3.8	< 3.4	< 3.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**< 3.8 [0.85 HJ]**	< 3.8 H
Perfluoropentanoic acid (PFPeA)	- -	- -	ng/L	**33**	**31**	**3.5 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**28 Q [25 HQ]**	**30 H**
Perfluorotetradecanoic acid (PFTeA)	- -	- -	ng/L	< 3.8	< 3.4	< 3.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 3.8 [< 3.3 H]	< 3.8 H
Perfluorotridecanoic Acid (PFTriA)	- -	- -	ng/L	< 3.8	< 3.4	< 3.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 3.8 [< 3.3 H]	< 3.8 H
Perfluoroundecanoic acid (PFUnA)	- -	- -	ng/L	< 3.8	< 3.4	< 3.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.77 J [0.64 HJ]**	**0.74 HJ**
Metals (EPA Method 200.8, Standard Methods 3500-Cr)																										
Arsenic	0.01	0.01	mg/L	< 0.002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 0.002 [< 0.002]	NA	NA	NA	< 0.002 [< 0.002]	NA
Arsenic (dissolved)	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium III (trivalent)	0.1	0.16	mg/L	< 0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 0.005 [< 0.005]	NA	NA	NA	< 0.005 [< 0.005]	NA
Chromium III (trivalent) (dissolved)	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium VI (hexavalent)	0.1	0.011	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1.0	0.02	mg/L	< 0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.005 [0.005]**	NA	NA	NA	< 0.005 [< 0.005]	NA
Copper (dissolved)	1.0	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.004	0.044	mg/L	< 0.003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 0.003 [< 0.003]	NA	NA	NA	< 0.003 [< 0.003]	NA
Lead (dissolved)	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	0.1	0.12	mg/L	< 0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.4 [0.409]**	NA	NA	NA	< 0.005 [< 0.005]	NA
Nickel (dissolved)	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	0.0045	0.027	mg/L	< 0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 0.005 [< 0.005]	NA	NA	NA	**0.008 [0.009]**	NA
Vanadium (dissolved)	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See notes on last page.

Table 2
Summary of Groundwater Analytical Results - 2024
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name: Sample Depth (ft. bgs):	Part 201 Residential Drinking Water	Part 201 Groundwater Surface Water Interface	Units	MW-13-37 05/20/24 MW-13-37 97-112	MW-13-38 05/24/24 MW-13-38 107-124	MW-13-41 05/21/24 MW-13-41 77-82	MW-13-43 05/14/24 MW-13-43 72-77	MW-13-43 11/12/24 MW-13-43_11122 72-77	MW-13-44 05/20/24 MW-13-44 96-115	MW-13-45 05/14/24 MW-13-45 72-77	MW-13-45 11/12/24 MW-13-45_11122 72-77	MW-13-46 05/21/24 MW-13-46 68-73	MW-13-47 05/24/24 MW-13-47 99-119	MW-13-48 05/16/24 MW-13-48 65-70	MW-13-48 11/18/24 MW-13-48_11182 65-70	MW-13-49 05/21/24 MW-13-49 73-78	MW-13-50 05/23/24 MW-13-50 85-107	MW-13-52 05/23/24 MW-13-52 70-80	MW-14-54 05/16/24 MW-14-54 14-19	MW-14-55 05/16/24 MW-14-55 13-18	MW-14-56 04/09/24 MW-14-56 71-76	MW-14-57 05/17/24 MW-14-57 15-20	MW-14-58R 04/08/24 MW-14-58R 22-27	MW-14-58R 11/12/24 MW-14-58R_11122 22-27	MW-14-59 05/17/24 MW-14-59 12-17
Field Parameters																										
pH	6.5 to 8.5	6.5 to 9.0	s.u.	8.71	7.16	7.23	6.85	6.86	7.11	6.67	6.54	6.78	6.94	6.52	6.54	6.91	6.75	6.92	8.13	7.17	6.77	7.36	6.98	6.93	7.1
Conductivity	- -	- -	mS/cm	0.635	2.99	3.348	2.798	2.705	1.678	1.504	1.542	2.601	1.895	2.863	2.43	1.974	1.2	1.158	0.973	0.699	3.291	1.011	2.552	2.784	0.76
Turbidity	- -	- -	NTU	10.28	22.12	45.51	245.72	317.71	387	36.58	89.64	58.37	89.11	133	11.35	121.11	43	31.91	28.84	5.15	7.09	28.9	10.94	11.76	8.44
Dissolved oxygen (DO)	- -	- -	mg/L	1.03	0.34	0.15	6.11	8.05	0.94	1.04	0.91	3.15	2.54	0	0.06	1.11	0.33	0.38	-0.23	7.04	0.44	4.09	0.24	0.2	-0.02
Temperature	- -	- -	Deg C	22.6	21	15.3	15.1	14.1	22.7	14.3	12.2	19.6	20.1	16.3	13.4	22.4	17.5	17.1	14.8	12.7	14.1	14	15	14.6	15.6
Oxidation reduction potential (ORP)	- -	- -	millivolts	-40.3	-130.2	39.8	157.1	73.2	-88.2	-17.6	-47.9	-36.9	-105	-86.1	-59.2	-37.6	-76.2	-83	-189.4	133.7	-46.7	140.6	-65.4	-88.7	3.4
Volatile Organics (via EPA Method SW5030C/8260C)																										
1,1-Dichloroethane	880	740	µg/L	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA	< 10 Y	< 1	NA	NA	< 1 [< 1]	NA	**2**
1,1-Dichloroethene	7.0	130	µg/L	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA	< 10 Y	< 1	NA	NA	< 1 [< 1]	NA	**16**
1,1,1-Trichloroethane	200	89	µg/L	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA	< 10 Y	< 1	NA	NA	< 1 [< 1]	NA	< 1
1,1,1,2-Tetrachloroethane	77	- -	µg/L	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA	< 10 Y	< 1	NA	NA	< 1 [< 1]	NA	< 1
1,1,2-Trichloroethane	5.0	330	µg/L	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA	< 10 Y	< 1	NA	NA	< 1 [< 1]	NA	< 1
1,1,2,2-Tetrachloroethane	8.5	78	µg/L	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA	< 10 Y	< 1	NA	NA	< 1 [< 1]	NA	< 1
1,2-Dibromo-3-chloropropane (DBCP)	0.2	- -	µg/L	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA	< 50 Y	< 5	NA	NA	< 5 [< 5]	NA	< 5
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7	µg/L	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA	< 10 Y	< 1	NA	NA	< 1 [< 1]	NA	< 1
1,2-Dichlorobenzene	600	13	µg/L	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA	< 10 Y	< 1	NA	NA	< 1 [< 1]	NA	< 1
1,2-Dichloroethane	5.0	360	µg/L	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA	< 10 Y	< 1	NA	NA	< 1 [< 1]	NA	< 1
1,2-Dichloropropane	5.0	230	µg/L	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA	< 10 Y	< 1	NA	NA	< 1 [< 1]	NA	< 1
1,2,3-Trichlorobenzene	- -	- -	µg/L	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA	< 50 Y	< 5	NA	NA	< 5 [< 5]	NA	< 5
1,2,3-Trichloropropane	42	- -	µg/L	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA	< 10 Y	< 1	NA	NA	< 1 [< 1]	NA	< 1
1,2,3-Trimethylbenzene	- -	- -	µg/L	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA	**100 Y**	< 1	NA	NA	< 1 [< 1]	NA	< 1
1,2,4-Trichlorobenzene	70	99	µg/L	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA	< 50 Y	< 5	NA	NA	< 5 [< 5]	NA	< 5
1,2,4-Trimethylbenzene	63	17	µg/L	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA	**310 Y**	< 1	NA	NA	< 1 [< 1]	NA	< 1
1,3-Dichlorobenzene	6.6	28	µg/L	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA	< 10 Y	< 1	NA	NA	< 1 [< 1]	NA	< 1
1,3,5-Trimethylbenzene	72	45	µg/L	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA	**20 Y**	< 1	NA	NA	< 1 [< 1]	NA	< 1
1,4-Dichlorobenzene	75	17	µg/L	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA	< 10 Y	< 1	NA	NA	< 1 [< 1]	NA	< 1
1,4-Dioxane	7.2	280	µg/L	**0.41***	**0.83***	NA	**3**	**4**	**3.6***	**28**	**27**	< 1	**1.2***	**86 [91]**	**94**	< 1	< 1	< 1	NA	NA	**18**	< 1	**280 [270]**	**220**	**8**
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200	µg/L	NA	NA	< 25	NA	NA	NA	NA	NA	NA	NA	< 25 [< 25]	NA	NA	NA	NA	< 250 Y	< 25	NA	NA	< 25 [< 25]	NA	< 25
2-Hexanone	1,000	- -	µg/L	NA	NA	< 50	NA	NA	NA	NA	NA	NA	NA	< 50 [< 50]	NA	NA	NA	NA	< 500 Y	< 50	NA	NA	< 50 [< 50]	NA	< 50
2-Methylnaphthalene	260	19	µg/L	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA	< 50 Y	< 5	NA	NA	< 5 [< 5]	NA	< 5
2-Phenylbutane (sec-Butylbenzene)	80	- -	µg/L	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA	< 10 Y	< 1	NA	NA	< 1 [< 1]	NA	< 1
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	- -	µg/L	NA	NA	< 50	NA	NA	NA	NA	NA	NA	NA	< 50 [< 50]	NA	NA	NA	NA	< 500 Y	< 50	NA	NA	< 50 [< 50]	NA	< 50
Acetone	730	1,700	µg/L	NA	NA	< 50	NA	NA	NA	NA	NA	NA	NA	< 50 [< 50]	NA	NA	NA	NA	< 500 Y	< 50	NA	NA	< 50 [< 50]	NA	< 50
Acrylonitrile	2.6	2.0	µg/L	NA	NA	< 2	NA	NA	NA	NA	NA	NA	NA	< 2 [< 2]	NA	NA	NA	NA	< 20 Y	< 2	NA	NA	< 2 [< 2]	NA	< 2
Benzene	5.0	200	µg/L	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA	**460 Y**	< 1	NA	NA	< 1 [< 1]	NA	< 1
Bromobenzene	18	- -	µg/L	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA	< 10 Y	< 1	NA	NA	< 1 [< 1]	NA	< 1
Bromodichloromethane	80	- -	µg/L	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA	< 10 Y	< 1	NA	NA	< 1 [< 1]	NA	< 1
Bromoform	80	- -	µg/L	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA	< 10 Y	< 1	NA	NA	< 1 [< 1]	NA	< 1
Bromomethane (Methyl bromide)	10	5.0	µg/L	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA	< 50 Y	< 5	NA	NA	< 5 [< 5]	NA	< 5
Carbon disulfide	800	- -	µg/L	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA	< 50 Y	< 5	NA	NA	< 5 [< 5]	NA	< 5
Carbon tetrachloride	5.0	38	µg/L	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA	< 10 Y	< 1	NA	NA	< 1 [< 1]	NA	< 1
Chlorobenzene	100	25	µg/L	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA	< 10 Y	< 1	NA	NA	< 1 [< 1]	NA	< 1
Chlorobromomethane	- -	- -	µg/L	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA	< 10 Y	< 1	NA	NA	< 1 [< 1]	NA	< 1
Chloroethane	430	1,100	µg/L	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA	< 50 Y	< 5	NA	NA	< 5 [< 5]	NA	< 5
Chloroform (Trichloromethane)	80	350	µg/L	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA	< 10 Y	< 1	NA	NA	< 1 [< 1]	NA	< 1
Chloromethane (Methyl chloride)	260	- -	µg/L	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA	< 50 Y	< 5	NA	NA	< 5 [< 5]	NA	< 5
cis-1,2-Dichloroethene	70	620	µg/L	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA	< 10 Y	< 1	NA	NA	< 1 [< 1]	NA	< 1
cis-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA	< 10 Y	< 1	NA	NA	< 1 [< 1]	NA	< 1
Cymene (p-Isopropyltoluene)	- -	- -	µg/L	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA	< 50 Y	< 5	NA	NA	< 5 [< 5]	NA	< 5
Dibromochloromethane	80	- -	µg/L	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA	< 50 Y	< 5	NA	NA	< 5 [< 5]	NA	< 5
Dibromomethane	80	- -	µg/L	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA	< 50 Y	< 5	NA	NA	< 5 [< 5]	NA	< 5
Dichlorodifluoromethane (CFC-12)	1,700	- -	µg/L	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA	< 50 Y	< 5	NA	NA	< 5 [< 5]	NA	< 5
Ethyl ether	10	- -	µg/L	NA	NA	< 10	NA	NA	NA	NA	NA	NA	NA	< 10 [< 10]	NA	NA	NA	NA	< 100 Y	< 10	NA	NA	< 10 [< 10]	NA	< 10
Ethylbenzene	74	18	µg/L	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA	**690 Y**	< 1	NA	NA	< 1 [< 1]	NA	< 1
Hexachloroethane	7.3	6.7	µg/L	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA	< 50 Y	< 5	NA	NA	< 5 [< 5]	NA	< 5
Iodomethane	- -	- -	µg/L	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA	< 10 Y	< 1	NA	NA	< 1 [< 1]	NA	< 1
Isopropyl benzene	800	28	µg/L	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA	< 50 Y	< 5	NA	NA	< 5 [< 5]	NA	< 5
Methyl tert butyl ether (MTBE)	40	7,100	µg/L	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA	< 50 Y	< 5	NA	NA	< 5 [< 5]	NA	< 5
Methylene chloride	5.0	1,500	µg/L	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA	< 50 Y	< 5	NA	NA	< 5 [< 5]	NA	< 5
Naphthalene	520	11	µg/L	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	< 5 [< 5]	NA	NA	NA	NA	**130 Y**	< 5	NA	NA	< 5 [< 5]	NA	< 5
N-Butylbenzene	80	- -	µg/L	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA	< 10 Y	< 1	NA	NA	< 1 [< 1]	NA	< 1
N-Propylbenzene	80	- -	µg/L	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA	**70 Y**	< 1	NA	NA	< 1 [< 1]	NA	< 1
Styrene	100	80	µg/L	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA	< 10 Y	< 1	NA	NA	< 1 [< 1]	NA	< 1
tert-Butylbenzene	80	- -	µg/L	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA	< 10 Y	< 1	NA	NA	< 1 [< 1]	NA	< 1
Tetrachloroethene	5.0	60	µg/L	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA	< 10 Y	**2**	NA	NA	< 1 [< 1]	NA	< 1
Tetrahydrofuran	95	11,000	µg/L	NA	NA	< 90	NA	NA	NA	NA	NA	NA	NA	< 90 [< 90]	NA	NA	NA	NA	< 900 Y	< 90	NA	NA	< 90 [< 90]	NA	< 90
Toluene	790	270	µg/L	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA	**130 Y**	< 1	NA	NA	< 1 [< 1]	NA	< 1
trans-1,2-Dichloroethene	100	1,500	µg/L	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA	< 10 Y	< 1	NA	NA	< 1 [< 1]	NA	< 1
trans-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA	< 10 Y	< 1	NA	NA	< 1 [< 1]	NA	< 1
trans-1,4-Dichloro-2-butene	- -	- -	µg/L	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA	< 10 Y	< 1	NA	NA	< 1 [< 1]	NA	< 1
Trichloroethene	5.0	200	µg/L	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA	< 10 Y	< 1	NA	NA	< 1 [< 1]	NA	< 1
Trichlorofluoromethane (CFC-11)	2,600	- -	µg/L	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA	< 10 Y	< 1	NA	NA	< 1 [< 1]	NA	< 1
Vinyl chloride	2.0	13	µg/L	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA	< 10 Y	< 1	NA	NA	< 1 [< 1]	NA	< 1
m&p-Xylene	280	49	µg/L	NA	NA	< 2	NA	NA	NA	NA	NA	NA	NA	< 2 [< 2]	NA	NA	NA	NA	**1080 Y**	< 2	NA	NA	< 2 [< 2]	NA	< 2
o-Xylene	280	49	µg/L	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1 [< 1]	NA	NA	NA	NA	**130 Y**	< 1	NA	NA	< 1 [< 1]	NA	< 1
Xylenes (total)	280	49	µg/L	NA	NA	< 2	NA	NA	NA	NA	NA	NA	NA	< 2 [< 2]	NA	NA	NA	NA	**1210 Y**	< 2	NA	NA	< 2 [< 2]	NA	< 2

See notes on last page.

Table 2
Summary of Groundwater Analytical Results - 2024
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name: Sample Depth (ft. bgs):	Part 201 Residential Drinking Water	Part 201 Groundwater Surface Water Interface	Units	MW-13-37 05/20/24 MW-13-37 97-112	MW-13-38 05/24/24 MW-13-38 107-124	MW-13-41 05/21/24 MW-13-41 77-82	MW-13-43 05/14/24 MW-13-43 72-77	MW-13-43 11/12/24 MW-13-43_11122 72-77	MW-13-44 05/20/24 MW-13-44 96-115	MW-13-45 05/14/24 MW-13-45 72-77	MW-13-45 11/12/24 MW-13-45_11122 72-77	MW-13-46 05/21/24 MW-13-46 68-73	MW-13-47 05/24/24 MW-13-47 99-119	MW-13-48 05/16/24 MW-13-48 65-70	MW-13-48 11/18/24 MW-13-48_11182 65-70	MW-13-49 05/21/24 MW-13-49 73-78	MW-13-50 05/23/24 MW-13-50 85-107	MW-13-52 05/23/24 MW-13-52 70-80	MW-14-54 05/16/24 MW-14-54 14-19	MW-14-55 05/16/24 MW-14-55 13-18	MW-14-56 04/09/24 MW-14-56 71-76	MW-14-57 05/17/24 MW-14-57 15-20	MW-14-58R 04/08/24 MW-14-58R 22-27	MW-14-58R 11/12/24 MW-14-58R_11122 22-27	MW-14-59 05/17/24 MW-14-59 12-17
Semi-Volatile Organics (via EPA Method SW5030C/8270D)																										
1,2-Dichlorobenzene	600	13	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1
1,2-Diphenylhydrazine	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5
1,2,4-Trichlorobenzene	70	99	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5
1,3-Dichlorobenzene	6.6	28	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1
1,4-Dichlorobenzene	75	17	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5
2,4-Dichlorophenol	73	11	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 10
2,4-Dimethylphenol	370	380	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5
2,4-Dinitrophenol	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 25
2,4-Dinitrotoluene	7.7	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5
2,4,5-Trichlorophenol	730	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5
2,4,6-Trichlorophenol	120	5.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 4
2,6-Dinitrotoluene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5
2-Chloronaphthalene	1,800	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5
2-Chlorophenol	45	18	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 10
2-Methylnaphthalene	260	19	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5
2-Methylphenol	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 10
2-Nitroaniline	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 25
2-Nitrophenol	20	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5
3&4-Methylphenol	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 20
3,3'-Dichlorobenzidine	1.1	0.3	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5
3-Nitroaniline	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 25
4,6-Dinitro-2-methylphenol	20	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 20
4-Bromophenyl phenyl ether	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5
4-Chloro-3-methylphenol	150	7.4	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5
4-Chloroaniline	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 10
4-Chlorophenyl phenyl ether	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5
4-Nitroaniline	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 25
4-Nitrophenol	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 25
Acenaphthene	1,300	38	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5
Acenaphthylene	52	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5
Anthracene	43	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5
Benzo(a)anthracene	2.1	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1
Benzo(a)pyrene	5.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1
Benzo(b)fluoranthene	1.5	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1
Benzo(g,h,i)perylene	1.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1
Benzo(k)fluoranthene	1.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1
bis(2-Chloroethoxy)methane	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5
bis(2-Chloroethyl)ether	2.0	1.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5
bis(2-Ethylhexyl)phthalate (DEHP)	6.0	14	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5
Butyl benzylphthalate (BBP)	1,200	67	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5
Chrysene	1.6	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1
Dibenz(a,h)anthracene	2.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 2
Dibenzofuran	- -	4.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 4
Diethyl phthalate	5,500	110	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5
Dimethyl phthalate	73,000	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5
Di-n-butylphthalate (DBP)	880	9.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5
Di-n-octyl phthalate (DnOP)	130	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5
Fluoranthene	210	1.6	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1
Fluorene	880	12	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5
Hexachlorobenzene	1.0	0.2	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5
Hexachlorobutadiene	15	0.053	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 10
Hexachlorocyclopentadiene	50	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5
Hexachloroethane	7.3	6.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5
Indeno(1,2,3-cd)pyrene	2.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 2
Isophorone	770	1,300	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5
Naphthalene	520	11	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5
Nitrobenzene	3.4	180	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5
N-Nitrosodi-n-propylamine	5.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5
N-Nitrosodiphenylamine	270	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5
Pentachlorophenol	1.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5
Phenanthrene	52	2.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 2
Phenol	4,400	450	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5
Pyrene	140	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5

Table 2
Summary of Groundwater Analytical Results - 2024
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name: Sample Depth (ft. bgs):	Part 201 Residential Drinking Water	Part 201 Groundwater Surface Water Interface	Units	MW-13-37 05/20/24 MW-13-37 97-112	MW-13-38 05/24/24 MW-13-38 107-124	MW-13-41 05/21/24 MW-13-41 77-82	MW-13-43 05/14/24 MW-13-43 72-77	MW-13-43 11/12/24 MW-13-43_11122 72-77	MW-13-44 05/20/24 MW-13-44 96-115	MW-13-45 05/14/24 MW-13-45 72-77	MW-13-45 11/12/24 MW-13-45_11122 72-77	MW-13-46 05/21/24 MW-13-46 68-73	MW-13-47 05/24/24 MW-13-47 99-119	MW-13-48 05/16/24 MW-13-48 65-70	MW-13-48 11/18/24 MW-13-48_11182 65-70	MW-13-49 05/21/24 MW-13-49 73-78	MW-13-50 05/23/24 MW-13-50 85-107	MW-13-52 05/23/24 MW-13-52 70-80	MW-14-54 05/16/24 MW-14-54 14-19	MW-14-55 05/16/24 MW-14-55 13-18	MW-14-56 04/09/24 MW-14-56 71-76	MW-14-57 05/17/24 MW-14-57 15-20	MW-14-58R 04/08/24 MW-14-58R 22-27	MW-14-58R 11/12/24 MW-14-58R_11122 22-27	MW-14-59 05/17/24 MW-14-59 12-17
Per- and Polyfluoroalkyl Substances (PFAS) (via EPA Method 537 Modified)																									
11Cl-PF3OUdS (F-53B Minor)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 13 J	NA	< 6.8 [< 6.9]	NA	< 7.4
4:2 FTS	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 13	NA	< 6.8 [< 6.9]	NA	< 7.4 Q
6:2 FTS	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 13 J	NA	< 6.8 [< 6.9]	NA	< 7.4 Q
8:2 FTS	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 13	NA	< 6.8 [< 6.9]	NA	< 7.4
9Cl-PF3ONS (F-53B Major)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 13	NA	< 6.8 [< 6.9]	NA	< 7.4
ADONA	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 13	NA	< 6.8 [< 6.9]	NA	< 7.4
Hexafluoropropylene oxide dimer acid (HFPO-DA) (GenX)	370	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 13	NA	< 6.8 [< 6.9]	NA	< 7.4
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 13	NA	< 6.8 [< 6.9]	NA	< 7.4
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 13 J	NA	< 6.8 [< 6.9]	NA	< 7.4
Perfluorobutanesulfonic acid (PFBS)	420	670,000	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.82 J**	NA	**1.9 J [1.2 J]**	NA	< 3.7
Perfluorobutanoic acid (PFBA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**14**	NA	**9.5 [8.7]**	NA	**15**
Perfluorodecanesulfonic acid (PFDS)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 6.6	NA	< 3.4 [< 3.4]	NA	< 3.7
Perfluorodecanoic acid (PFDA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 6.6	NA	< 3.4 [< 3.4]	NA	< 3.7
Perfluorododecanoic acid (PFDoA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 6.6	NA	< 3.4 [< 3.4]	NA	< 3.7
Perfluoroheptanesulfonic Acid (PFHpS)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 6.6	NA	< 3.4 [< 3.4]	NA	< 3.7
Perfluoroheptanoic acid (PFHpA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**2.3 J**	NA	**4.8 [4.6]**	NA	**9.1**
Perfluorohexanesulfonic acid (PFHxS)	51	210	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.6 J**	NA	**2.6 J [2.5 J]**	NA	**2.8 J**
Perfluorohexanoic acid (PFHxA)	400,000	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**6.5 J**	NA	**7.1 [6.9]**	NA	**21**
Perfluorononanesulfonic acid (PFNS)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 6.6	NA	< 3.4 [< 3.4]	NA	< 3.7
Perfluorononanoic acid (PFNA)	6.0	30	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.1 J**	NA	**0.67 J [0.77 J]**	NA	< 3.7
Perfluorooctane Sulfonamide (PFOSA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 6.6 J	NA	< 3.4 [< 3.4]	NA	< 3.7
Perfluorooctane sulfonic acid (PFOS)	16	12	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**15**	NA	**5.4 [5.2]**	NA	< 3.7
Perfluorooctanoic acid (PFOA)	8.0	170	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**8.2**	NA	**12 [14]**	NA	**15**
Perfluoropentanesulfonic acid (PFPeS)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 6.6 J	NA	< 3.4 [< 3.4]	NA	< 3.7
Perfluoropentanoic acid (PFPeA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**23**	NA	**6.9 [6.2]**	NA	**13**
Perfluorotetradecanoic acid (PFTeA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 6.6 J	NA	< 3.4 [< 3.4]	NA	< 3.7
Perfluorotridecanoic Acid (PFTriA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 6.6 J	NA	< 3.4 [< 3.4]	NA	< 3.7
Perfluoroundecanoic acid (PFUnA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 6.6	NA	< 3.4 [< 3.4]	NA	< 3.7
Metals (EPA Method 200.8, Standard Methods 3500-Cr)																									
Arsenic	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic (dissolved)	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium III (trivalent)	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium III (trivalent) (dissolved)	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium VI (hexavalent)	0.1	0.011	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1.0	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper (dissolved)	1.0	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead (dissolved)	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel (dissolved)	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium (dissolved)	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See notes on last page.

Table 2
Summary of Groundwater Analytical Results - 2024
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID:	Part 201 Residential Drinking Water	Part 201 Groundwater Surface Water Interface	Units	MW-14-60	MW-14-61	MW-14-61	MW-14-62	MW-14-63	MW-14-64	MW-14-66	MW-14-67	MW-14-70	MW-15-71	MW-15-72	MW-15-72	MW-15-73	MW-16-74	MW-16-74	MW-16-75	MW-16-76	MW-16-77	MW-16-78	MW-16-78	MW-16-78	MW-16-80
Date Collected:				05/17/24	05/15/24	11/12/24	05/15/24	05/16/24	05/21/24	05/23/24	05/23/24	05/22/24	05/21/24	05/15/24	11/13/24	04/10/24	05/14/24	11/13/24	05/14/24	05/16/24	05/14/24	02/12/24	05/14/24	11/13/24	04/10/24
Sample Name:				MW-14-60	MW-14-61	MW-14-61_11122	MW-14-62	MW-14-63	MW-14-64	MW-14-66	MW-14-67	MW-14-70	MW-15-71	MW-15-72	MW-15-72_11132	MW-15-73	MW-16-74	MW-16-74_11132	MW-16-75	MW-16-76	MW-16-77	MW-16-78	MW-16-78	MW-16-78_11132	MW-16-80
Sample Depth (ft. bgs):				15-20	70-75	70-75	12-17	68-73	98.6-103.6	14-19	13-18	16-21	110-115	63-68	63-68	78-83	66-71	66-71	66-71	70-75	66-71	68-73	68-73	68-73	68-73
Field Parameters																									
pH	6.5 to 8.5	6.5 to 9.0	s.u.	7.41	6.91	6.91	11.5	6.88	6.96	7.55	7.29	7.14	7.05	6.97	6.7	6.55	6.67	6.65	6.98	6.91	6.85	7.13	6.98	6.92	6.58
Conductivity	- -	- -	mS/cm	1.233	3.237	3.237	0.602	1.277	1.686	0.828	1.076	1.522	1.45	1.627	1.466	3.462	2.311	2.341	1.963	3.161	2.983	1.117	1.569	1.59	2.918
Turbidity	- -	- -	NTU	28.64	28.11	89.52	9.76	123.93	33.24	52.48	3.73	27.64	82.43	28.36	14.98	22.16	59.54	673.69	103.75	114.96	22.78	32	28.57	6.56	41.22
Dissolved oxygen (DO)	- -	- -	mg/L	-0.03	0.53	4.33	0.25	0.39	0.25	-0.1	0.08	0.4	0.22	6.38	0.52	0.4	0.04	1.97	0.42	0.54	1.29	0	-0.24	0.22	0.29
Temperature	- -	- -	Deg C	16	15	12.5	16.9	18.3	24.7	15.9	13.1	28.8	17	15.6	13.1	13.3	14.3	14	17.8	17.3	13.5	11.3	13.8	13	12.2
Oxidation reduction potential (ORP)	- -	- -	millivolts	-84.2	180.9	105.7	-346.8	-75.2	-96.6	-67.2	138.5	109.7	-82.6	-31.9	-74.3	23.6	-30.7	-3.9	-72.8	-48.6	-28.4	-55.4	28.22	-72.8	-36.8
Volatile Organics (via EPA Method SW5030C/8260C)																									
1,1-Dichloroethane	880	740	µg/L	< 1	< 1 [< 1]	NA	**222 E**	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	7.0	130	µg/L	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	200	89	µg/L	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1,2-Tetrachloroethane	77	- -	µg/L	< 1	< 1 [< 1]	NA	< 10 Y	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	5.0	330	µg/L	< 1	< 1 [< 1]	NA	< 10 Y	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	8.5	78	µg/L	< 1	< 1 [< 1]	NA	< 10 Y	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane (DBCP)	0.2	- -	µg/L	< 5	< 5 [< 5]	NA	< 50 Y	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7	µg/L	< 1	< 1 [< 1]	NA	< 10 Y	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	600	13	µg/L	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	5.0	360	µg/L	< 1	< 1 [< 1]	NA	< 10 Y	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	5.0	230	µg/L	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichlorobenzene	- -	- -	µg/L	< 5	< 5 [< 5]	NA	< 50 Y	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	42	- -	µg/L	< 1	< 1 [< 1]	NA	< 10 Y	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trimethylbenzene	- -	- -	µg/L	< 1	< 1 [< 1]	NA	< 10 Y	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	70	99	µg/L	< 5	< 5 [< 5]	NA	< 50 Y	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	63	17	µg/L	< 1	< 1 [< 1]	NA	< 10 Y	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	6.6	28	µg/L	< 1	< 1 [< 1]	NA	< 10 Y	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	72	45	µg/L	< 1	< 1 [< 1]	NA	< 10 Y	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	75	17	µg/L	< 1	< 1 [< 1]	NA	< 10 Y	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	7.2	280	µg/L	**10**	**8 [8]**	**7**	**112**	**3**	< 1	NA	NA	NA	< 1	**165**	**108**	**3**	**3**	**3**	**1**	**3**	< 1	< 1	< 1	< 1	**25**
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200	µg/L	< 25	< 25 [< 25]	NA	< 25	NA	NA	NA	NA	NA	NA	< 25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	1,000	- -	µg/L	< 50	< 50 [< 50]	NA	< 500 Y	NA	NA	NA	NA	NA	NA	< 50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	260	19	µg/L	< 5	< 5 [< 5]	NA	< 50 Y	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Phenylbutane (sec-Butylbenzene)	80	- -	µg/L	< 1	< 1 [< 1]	NA	< 10 Y	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	- -	µg/L	< 50	< 50 [< 50]	NA	< 500 Y	NA	NA	NA	NA	NA	NA	< 50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	730	1,700	µg/L	< 50	< 50 [< 50]	NA	< 500 Y	NA	NA	NA	NA	NA	NA	< 50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrylonitrile	2.6	2.0	µg/L	< 2	< 2 [< 2]	NA	< 20 Y	NA	NA	NA	NA	NA	NA	< 2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	5.0	200	µg/L	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromobenzene	18	- -	µg/L	< 1	< 1 [< 1]	NA	< 10 Y	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	80	- -	µg/L	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	80	- -	µg/L	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane (Methyl bromide)	10	5.0	µg/L	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	800	- -	µg/L	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon tetrachloride	5.0	38	µg/L	< 1	< 1 [< 1]	NA	< 10 Y	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	100	25	µg/L	< 1	< 1 [< 1]	NA	< 10 Y	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobromomethane	- -	- -	µg/L	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	430	1,100	µg/L	< 5	< 5 [< 5]	NA	**8**	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform (Trichloromethane)	80	350	µg/L	< 1	< 1 [< 1]	NA	< 10 Y	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane (Methyl chloride)	260	- -	µg/L	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	70	620	µg/L	< 1	< 1 [< 1]	NA	< 10 Y	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	- -	- -	µg/L	< 1	< 1 [< 1]	NA	< 10 Y	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cymene (p-Isopropyltoluene)	- -	- -	µg/L	< 5	< 5 [< 5]	NA	< 50 Y	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	80	- -	µg/L	< 5	< 5 [< 5]	NA	< 50 Y	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromomethane	80	- -	µg/L	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane (CFC-12)	1,700	- -	µg/L	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl ether	10	- -	µg/L	< 10	< 10 [< 10]	NA	< 100 Y	NA	NA	NA	NA	NA	NA	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	74	18	µg/L	< 1	< 1 [< 1]	NA	< 10 Y	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	7.3	6.7	µg/L	< 5	< 5 [< 5]	NA	< 50 Y	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iodomethane	- -	- -	µg/L	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropyl benzene	800	28	µg/L	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert butyl ether (MTBE)	40	7,100	µg/L	< 5	< 5 [< 5]	NA	< 50 Y	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	5.0	1,500	µg/L	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	520	11	µg/L	< 5	< 5 [< 5]	NA	< 50 Y	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Butylbenzene	80	- -	µg/L	< 1	< 1 [< 1]	NA	< 10 Y	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Propylbenzene	80	- -	µg/L	< 1	< 1 [< 1]	NA	< 10 Y	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	100	80	µg/L	< 1	< 1 [< 1]	NA	< 10 Y	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	80	- -	µg/L	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	5.0	60	µg/L	< 1	< 1 [< 1]	NA	< 10 Y	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrahydrofuran	95	11,000	µg/L	< 90	< 90 [< 90]	NA	< 900 Y	NA	NA	NA	NA	NA	NA	< 90	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	790	270	µg/L	< 1	< 1 [< 1]	NA	< 10 Y	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	100	1,500	µg/L	< 1	< 1 [< 1]	NA	< 10 Y	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	- -	- -	µg/L	< 1	< 1 [< 1]	NA	< 10 Y	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,4-Dichloro-2-butene	- -	- -	µg/L	< 1	< 1 [< 1]	NA	< 10 Y	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	5.0	200	µg/L	< 1	< 1 [< 1]	NA	< 10 Y	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane (CFC-11)	2,600	- -	µg/L	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	2.0	13	µg/L	**2**	< 1 [< 1]	NA	< 10 Y	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m&p-Xylene	280	49	µg/L	< 2	< 2 [< 2]	NA	< 20 Y	NA	NA	NA	NA	NA	NA	< 2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	280	49	µg/L	< 1	< 1 [< 1]	NA	< 10 Y	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	280	49	µg/L	< 2	< 2 [< 2]	NA	< 20 Y	NA	NA	NA	NA	NA	NA	< 2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See notes on last page.

Table 2
Summary of Groundwater Analytical Results - 2024
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name: Sample Depth (ft. bgs):	Part 201 Residential Drinking Water	Part 201 Groundwater Surface Water Interface	Units	MW-14-60 05/17/24 MW-14-60 15-20	MW-14-61 05/15/24 MW-14-61 70-75	MW-14-61 11/12/24 MW-14-61_11122 70-75	MW-14-62 05/15/24 MW-14-62 12-17	MW-14-63 05/16/24 MW-14-63 68-73	MW-14-64 05/21/24 MW-14-64 98.6-103.6	MW-14-66 05/23/24 MW-14-66 14-19	MW-14-67 05/23/24 MW-14-67 13-18	MW-14-70 05/22/24 MW-14-70 16-21	MW-15-71 05/21/24 MW-15-71 110-115	MW-15-72 05/15/24 MW-15-72 63-68	MW-15-72 11/13/24 MW-15-72_11132 63-68	MW-15-73 04/10/24 MW-15-73 78-83	MW-16-74 05/14/24 MW-16-74 66-71	MW-16-74 11/13/24 MW-16-74_11132 66-71	MW-16-75 05/14/24 MW-16-75 66-71	MW-16-76 05/16/24 MW-16-76 70-75	MW-16-77 05/14/24 MW-16-77 66-71	MW-16-78 02/12/24 MW-16-78 68-73	MW-16-78 05/14/24 MW-16-78 68-73	MW-16-78 11/13/24 MW-16-78_11132 68-73	MW-16-80 04/10/24 MW-16-80 68-73
Semi-Volatile Organics (via EPA Method SW5030C/8270D)																										
1,2-Dichlorobenzene	600	13	µg/L	< 1	< 1 [< 1]	NA	< 10 Y	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Diphenylhydrazine	- -	- -	µg/L	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	70	99	µg/L	< 5	< 5 [< 5]	NA	< 50 Y	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	6.6	28	µg/L	< 1	< 1 [< 1]	NA	< 10 Y	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	75	17	µg/L	< 1	< 1 [< 1]	NA	< 10 Y	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	- -	- -	µg/L	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	73	11	µg/L	< 10	< 10 [< 10]	NA	< 10	NA	NA	NA	NA	NA	NA	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	370	380	µg/L	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	- -	- -	µg/L	< 25	< 25 [< 25]	NA	< 25	NA	NA	NA	NA	NA	NA	< 25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	7.7	- -	µg/L	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	730	- -	µg/L	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	120	5.0	µg/L	< 4	< 4 [< 4]	NA	< 4	NA	NA	NA	NA	NA	NA	< 4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	- -	- -	µg/L	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	1,800	- -	µg/L	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorophenol	45	18	µg/L	< 10	< 10 [< 10]	NA	< 10	NA	NA	NA	NA	NA	NA	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	260	19	µg/L	< 5	< 5 [< 5]	NA	< 50 Y	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	- -	- -	µg/L	< 10	< 10 [< 10]	NA	< 10	NA	NA	NA	NA	NA	NA	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitroaniline	- -	- -	µg/L	< 25	< 25 [< 25]	NA	< 25	NA	NA	NA	NA	NA	NA	< 25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	20	- -	µg/L	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3&4-Methylphenol	- -	- -	µg/L	< 20	< 20 [< 20]	NA	< 20	NA	NA	NA	NA	NA	NA	< 20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	1.1	0.3	µg/L	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	- -	- -	µg/L	< 25	< 25 [< 25]	NA	< 25	NA	NA	NA	NA	NA	NA	< 25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	20	- -	µg/L	< 20	< 20 [< 20]	NA	< 20	NA	NA	NA	NA	NA	NA	< 20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Bromophenyl phenyl ether	- -	- -	µg/L	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	150	7.4	µg/L	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloroaniline	- -	- -	µg/L	< 10	< 10 [< 10]	NA	< 10	NA	NA	NA	NA	NA	NA	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl phenyl ether	- -	- -	µg/L	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	- -	- -	µg/L	< 25	< 25 [< 25]	NA	< 25	NA	NA	NA	NA	NA	NA	< 25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrophenol	- -	- -	µg/L	< 25	< 25 [< 25]	NA	< 25	NA	NA	NA	NA	NA	NA	< 25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	1,300	38	µg/L	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	52	- -	µg/L	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	43	- -	µg/L	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	2.1	- -	µg/L	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	5.0	- -	µg/L	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1.5	- -	µg/L	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	1.0	- -	µg/L	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	1.0	- -	µg/L	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethoxy)methane	- -	- -	µg/L	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl)ether	2.0	1.0	µg/L	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate (DEHP)	6.0	14	µg/L	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butyl benzylphthalate (BBP)	1,200	67	µg/L	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	1.6	- -	µg/L	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	2.0	- -	µg/L	< 2	< 2 [< 2]	NA	< 2	NA	NA	NA	NA	NA	NA	< 2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	- -	4.0	µg/L	< 4	< 4 [< 4]	NA	< 4	NA	NA	NA	NA	NA	NA	< 4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	5,500	110	µg/L	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	73,000	- -	µg/L	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylphthalate (DBP)	880	9.7	µg/L	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate (DnOP)	130	- -	µg/L	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	210	1.6	µg/L	< 1	< 1 [< 1]	NA	< 1	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	880	12	µg/L	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	1.0	0.2	µg/L	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	15	0.053	µg/L	< 10	< 10 [< 10]	NA	< 10	NA	NA	NA	NA	NA	NA	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	50	- -	µg/L	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	7.3	6.7	µg/L	< 5	< 5 [< 5]	NA	< 50 Y	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	2.0	- -	µg/L	< 2	< 2 [< 2]	NA	< 2	NA	NA	NA	NA	NA	NA	< 2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isophorone	770	1,300	µg/L	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	520	11	µg/L	< 5	< 5 [< 5]	NA	< 50 Y	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene	3.4	180	µg/L	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodi-n-propylamine	5.0	- -	µg/L	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	270	- -	µg/L	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	1.0	- -	µg/L	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	52	2.0	µg/L	< 2	< 2 [< 2]	NA	< 2	NA	NA	NA	NA	NA	NA	< 2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	4,400	450	µg/L	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	140	- -	µg/L	< 5	< 5 [< 5]	NA	< 5	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 2
Summary of Groundwater Analytical Results - 2024
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name: Sample Depth (ft. bgs):	Part 201 Residential Drinking Water	Part 201 Groundwater Surface Water Interface	Units	MW-14-60 05/17/24 MW-14-60 15-20	MW-14-61 05/15/24 MW-14-61 70-75	MW-14-61 11/12/24 MW-14-61_11122 70-75	MW-14-62 05/15/24 MW-14-62 12-17	MW-14-63 05/16/24 MW-14-63 68-73	MW-14-64 05/21/24 MW-14-64 98.6-103.6	MW-14-66 05/23/24 MW-14-66 14-19	MW-14-67 05/23/24 MW-14-67 13-18	MW-14-70 05/22/24 MW-14-70 16-21	MW-15-71 05/21/24 MW-15-71 110-115	MW-15-72 05/15/24 MW-15-72 63-68	MW-15-72 11/13/24 MW-15-72_11132 63-68	MW-15-73 04/10/24 MW-15-73 78-83	MW-16-74 05/14/24 MW-16-74 66-71	MW-16-74 11/13/24 MW-16-74_11132 66-71	MW-16-75 05/14/24 MW-16-75 66-71	MW-16-76 05/16/24 MW-16-76 70-75	MW-16-77 05/14/24 MW-16-77 66-71	MW-16-78 02/12/24 MW-16-78 68-73	MW-16-78 05/14/24 MW-16-78 68-73	MW-16-78 11/13/24 MW-16-78_11132 68-73	MW-16-80 04/10/24 MW-16-80 68-73
Per- and Polyfluoroalkyl Substances (PFAS) (via EPA Method 537 Modified)																											
11Cl-PF3OUdS (F-53B Minor)	- -	- -	ng/L	< 7.5	< 7.4 [< 7.3]	NA	< 6.6	NA	NA	NA	< 6.6	< 7.7	NA	< 7.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4:2 FTS	- -	- -	ng/L	< 7.5 Q	< 7.4 [< 7.3]	NA	< 6.6 Q	NA	NA	NA	< 6.6	< 7.7 Q	NA	< 7.3 Q	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
6:2 FTS	- -	- -	ng/L	< 7.5 Q	< 7.4 [< 7.3]	NA	**15 Q**	NA	NA	NA	< 6.6 Q	< 7.7 Q	NA	< 7.3 Q	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
8:2 FTS	- -	- -	ng/L	< 7.5 Q	< 7.4 [< 7.3]	NA	**3.0 JQ**	NA	NA	NA	< 6.6	< 7.7	NA	< 7.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9Cl-PF3ONS (F-53B Major)	- -	- -	ng/L	< 7.5	< 7.4 [< 7.3]	NA	< 6.6	NA	NA	NA	< 6.6	< 7.7	NA	< 7.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ADONA	- -	- -	ng/L	< 7.5	< 7.4 [< 7.3]	NA	< 6.6	NA	NA	NA	< 6.6	< 7.7	NA	< 7.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexafluoropropylene oxide dimer acid (HFPO-DA) (GenX)	370	- -	ng/L	< 7.5	< 7.4 [< 7.3]	NA	< 6.6	NA	NA	NA	< 6.6	< 7.7	NA	< 7.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	- -	- -	ng/L	< 7.5	< 7.4 [< 7.3]	NA	**1.8 J**	NA	NA	NA	< 6.6	< 7.7	NA	< 7.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA	- -	- -	ng/L	< 7.5	< 7.4 [< 7.3]	NA	**1.0 J**	NA	NA	NA	< 6.6	< 7.7	NA	< 7.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorobutanesulfonic acid (PFBS)	420	670,000	ng/L	< 3.8	< 3.7 [< 3.7]	NA	**1.7 J**	NA	NA	NA	**3.6**	**7.7**	NA	**7.5**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorobutanoic acid (PFBA)	- -	- -	ng/L	**24**	**3.6 J [3.8]**	NA	**40 Q**	NA	NA	NA	**38**	**56**	NA	**5.5**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorodecanesulfonic acid (PFDS)	- -	- -	ng/L	< 3.8	< 3.7 [< 3.7]	NA	< 3.3	NA	NA	NA	< 3.3	< 3.8	NA	< 3.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorodecanoic acid (PFDA)	- -	- -	ng/L	**1.1 J**	< 3.7 [< 3.7]	NA	**2.5 J**	NA	NA	NA	**1.3 J**	< 3.8	NA	< 3.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorododecanoic acid (PFDoA)	- -	- -	ng/L	< 3.8	< 3.7 [< 3.7]	NA	< 3.3	NA	NA	NA	< 3.3	< 3.8	NA	< 3.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanesulfonic Acid (PFHpS)	- -	- -	ng/L	< 3.8	< 3.7 [< 3.7]	NA	**0.90 J**	NA	NA	NA	< 3.3	< 3.8	NA	< 3.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid (PFHpA)	- -	- -	ng/L	**13**	**0.73 J [0.81 J]**	NA	**23**	NA	NA	NA	**29**	**64**	NA	< 3.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid (PFHxS)	51	210	ng/L	**7**	< 3.7 [< 3.7]	NA	**7.9**	NA	NA	NA	**1.0 J**	**2.9 J**	NA	< 3.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanoic acid (PFHxA)	400,000	- -	ng/L	**20**	**< 3.7 [1.3 J]**	NA	**25**	NA	NA	NA	**83**	**140**	NA	**1.9 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanesulfonic acid (PFNS)	- -	- -	ng/L	< 3.8	< 3.7 [< 3.7]	NA	< 3.3	NA	NA	NA	< 3.3	< 3.8	NA	< 3.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid (PFNA)	6.0	30	ng/L	**4.8**	< 3.7 [< 3.7]	NA	**8.5**	NA	NA	NA	**0.59 J**	< 3.8	NA	< 3.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonamide (PFOSA)	- -	- -	ng/L	< 3.8	< 3.7 [< 3.7]	NA	**3.9**	NA	NA	NA	< 3.3	< 3.8	NA	< 3.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane sulfonic acid (PFOS)	16	12	ng/L	**50**	< 3.7 [< 3.7]	NA	**48**	NA	NA	NA	< 3.3	< 3.8	NA	< 3.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic acid (PFOA)	8.0	170	ng/L	**29**	**1.2 J [1.1 J]**	NA	**62**	NA	NA	NA	**18**	**32**	NA	< 3.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoropentanesulfonic acid (PFPeS)	- -	- -	ng/L	< 3.8	< 3.7 [< 3.7]	NA	**1.3 J**	NA	NA	NA	< 3.3	< 3.8	NA	< 3.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoropentanoic acid (PFPeA)	- -	- -	ng/L	**15**	**3.5 J [3.4 J]**	NA	**22 Q**	NA	NA	NA	**56**	**170**	NA	**3.7**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorotetradecanoic acid (PFTeA)	- -	- -	ng/L	< 3.8	< 3.7 [< 3.7]	NA	< 3.3	NA	NA	NA	< 3.3	< 3.8	NA	< 3.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorotridecanoic Acid (PFTriA)	- -	- -	ng/L	< 3.8	< 3.7 [< 3.7]	NA	< 3.3	NA	NA	NA	< 3.3	< 3.8	NA	< 3.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroundecanoic acid (PFUnA)	- -	- -	ng/L	< 3.8	< 3.7 [< 3.7]	NA	< 3.3	NA	NA	NA	**0.62 J**	< 3.8	NA	< 3.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals (EPA Method 200.8, Standard Methods 3500-Cr)																											
Arsenic	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	**0.003**	< 0.002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic (dissolved)	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	**0.003**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium III (trivalent)	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	< 0.005	< 0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium III (trivalent) (dissolved)	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	< 0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium VI (hexavalent)	0.1	0.011	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1.0	0.02	mg/L	NA	NA	NA	NA	NA	NA	< 0.005	< 0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper (dissolved)	1.0	0.02	mg/L	NA	NA	NA	NA	NA	NA	< 0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	< 0.003	< 0.003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead (dissolved)	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	< 0.003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	< 0.005	< 0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel (dissolved)	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	< 0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	< 0.005	< 0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium (dissolved)	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	< 0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See notes on last page.

Table 2
Summary of Groundwater Analytical Results - 2024
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name: Sample Depth (ft. bgs):	Part 201 Residential Drinking Water	Part 201 Groundwater Surface Water Interface	Units	MW-16-81 05/15/24 MW-16-81 70-75	MW-16-81 11/13/24 MW-16-81_11132 70-75	MW-16-82 05/14/24 MW-16-82 70-75	MW-16-82 11/13/24 MW-16-82_11132 70-75	MW-16-83 04/10/24 MW-16-83 71-76	MW-16-84 05/14/24 MW-16-84 72-77	MW-16-84 11/13/24 MW-16-84_11132 72-77	MW-16-85 05/16/24 MW-16-85 74-79	MW-16-85 11/12/24 MW-16-85_11122 74-79	MW-17-86 05/14/24 MW-17-86 73-78	MW-17-86 11/14/24 MW-17-86_11142 73-78	MW-17-87 04/09/24 MW-17-87 100-112	MW-18-88 05/22/24 MW-18-88 6-11	MW-18-88 11/19/24 MW-18-88_11192 6-11	MW-18-89 05/20/24 MW-18-89 7-12	MW-18-90 05/20/24 MW-18-90 15-20	MW-18-91 05/21/24 MW-18-91 7-12	MW-18-92 05/21/24 MW-18-92 23-28	MW-18-93 05/21/24 MW-18-93 77.5-82.5	MW-18-94 05/21/24 MW-18-94 72-77	MW-18-95 05/21/24 MW-18-95 4.5-9.5	MW-18-95 11/19/24 MW-18-95_11192 4.5-9.5
Field Parameters																										
pH	6.5 to 8.5	6.5 to 9.0	s.u.	7.12	6.71	6.97	6.85	6.56	6.94	6.89	7.25	7.23	7.05	7.03	9.27	7.09	6.93	7.65	12.15	7.74	6.87	7.34	6.86	7.33	7.23
Conductivity	- -	- -	mS/cm	3.011	3.014	1.304	1.418	3.361	2.327	2.635	0.929	0.824	2.784	2.957	1.981	0.681	0.746	0.861	1.884	0.569	1.018	0.7	6.067	0.475	0.642
Turbidity	- -	- -	NTU	11.32	11.97	7.04	9.32	4.85	66.82	43.44	197.58	84	13.94	15.92	41.94	7.21	2.24	23.27	16	3.88	4.07	252.56	566.35	3.59	9.45
Dissolved oxygen (DO)	- -	- -	mg/L	8.33	1.17	0.54	0.49	0.36	2.88	5.23	0.73	0.43	0.67	0.89	0.17	0.27	0.12	0.23	-0.04	0.26	0.31	0.61	-0.11	0.18	1.01
Temperature	- -	- -	Deg C	16.4	14.1	15.2	14.3	13	15	12.2	18.4	12.4	14.9	12	14.8	16.9	16.2	17.9	16.7	14.8	13.3	17.2	15.7	16.7	15.3
Oxidation reduction potential (ORP)	- -	- -	millivolts	111.1	91.3	-82.1	-88.9	-57.5	58.1	104.3	-89.1	-74	-53.1	-66.4	-176.8	58.6	147.9	-122.7	-89.9	58.8	138.8	-107	-95.5	182	104.4
Volatile Organics (via EPA Method SW5030C/8260C)																										
1,1-Dichloroethane	880	740	µg/L	< 1	NA	NA	NA	NA	< 1	NA	< 1	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	7.0	130	µg/L	< 1	NA	NA	NA	NA	< 1	NA	< 1	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	200	89	µg/L	< 1	NA	NA	NA	NA	< 1	NA	< 1	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1,2-Tetrachloroethane	77	- -	µg/L	< 1	NA	NA	NA	NA	< 1	NA	< 1	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	5.0	330	µg/L	< 1	NA	NA	NA	NA	< 1	NA	< 1	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	8.5	78	µg/L	< 1	NA	NA	NA	NA	< 1	NA	< 1	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane (DBCP)	0.2	- -	µg/L	< 5	NA	NA	NA	NA	< 5	NA	< 5	NA	< 5	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7	µg/L	< 1	NA	NA	NA	NA	< 1	NA	< 1	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	600	13	µg/L	< 1	NA	NA	NA	NA	< 1	NA	< 1	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	5.0	360	µg/L	< 1	NA	NA	NA	NA	< 1	NA	< 1	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	5.0	230	µg/L	< 1	NA	NA	NA	NA	< 1	NA	< 1	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichlorobenzene	- -	- -	µg/L	< 5	NA	NA	NA	NA	< 5	NA	< 5	NA	< 5	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	42	- -	µg/L	< 1	NA	NA	NA	NA	< 1	NA	< 1	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trimethylbenzene	- -	- -	µg/L	< 1	NA	NA	NA	NA	< 1	NA	< 1	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	70	99	µg/L	< 5	NA	NA	NA	NA	< 5	NA	< 5	NA	< 5	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	63	17	µg/L	< 1	NA	NA	NA	NA	< 1	NA	< 1	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	6.6	28	µg/L	< 1	NA	NA	NA	NA	< 1	NA	< 1	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	72	45	µg/L	< 1	NA	NA	NA	NA	< 1	NA	< 1	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	75	17	µg/L	< 1	NA	NA	NA	NA	< 1	NA	< 1	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	7.2	280	µg/L	**38**	**58**	**6**	**9**	< 1	**32**	**20**	**18**	**8**	**16**	**16**	**3.4* [3.4*]**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200	µg/L	< 25	NA	NA	NA	NA	< 25	NA	< 25	NA	< 25	NA	NA	< 25	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	1,000	- -	µg/L	< 50	NA	NA	NA	NA	< 50	NA	< 50	NA	< 50	NA	NA	< 50	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	260	19	µg/L	< 5	NA	NA	NA	NA	< 5	NA	< 5	NA	< 5	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Phenylbutane (sec-Butylbenzene)	80	- -	µg/L	< 1	NA	NA	NA	NA	< 1	NA	< 1	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	- -	µg/L	< 50	NA	NA	NA	NA	< 50	NA	< 50	NA	< 50	NA	NA	< 50	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	730	1,700	µg/L	< 50	NA	NA	NA	NA	< 50	NA	< 50	NA	< 50	NA	NA	< 50	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrylonitrile	2.6	2.0	µg/L	< 2	NA	NA	NA	NA	< 2	NA	< 2	NA	< 2	NA	NA	< 2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	5.0	200	µg/L	< 1	NA	NA	NA	NA	< 1	NA	< 1	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromobenzene	18	- -	µg/L	< 1	NA	NA	NA	NA	< 1	NA	< 1	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	80	- -	µg/L	< 1	NA	NA	NA	NA	< 1	NA	< 1	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	80	- -	µg/L	< 1	NA	NA	NA	NA	< 1	NA	< 1	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane (Methyl bromide)	10	5.0	µg/L	< 5	NA	NA	NA	NA	< 5	NA	< 5	NA	< 5	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	800	- -	µg/L	< 5	NA	NA	NA	NA	< 5	NA	< 5	NA	< 5	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon tetrachloride	5.0	38	µg/L	< 1	NA	NA	NA	NA	< 1	NA	< 1	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	100	25	µg/L	< 1	NA	NA	NA	NA	< 1	NA	< 1	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobromomethane	- -	- -	µg/L	< 1	NA	NA	NA	NA	< 1	NA	< 1	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	430	1,100	µg/L	< 5	NA	NA	NA	NA	< 5	NA	< 5	NA	< 5	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform (Trichloromethane)	80	350	µg/L	< 1	NA	NA	NA	NA	< 1	NA	< 1	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane (Methyl chloride)	260	- -	µg/L	< 5	NA	NA	NA	NA	< 5	NA	< 5	NA	< 5	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	70	620	µg/L	< 1	NA	NA	NA	NA	< 1	NA	< 1	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	- -	- -	µg/L	< 1	NA	NA	NA	NA	< 1	NA	< 1	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cymene (p-Isopropyltoluene)	- -	- -	µg/L	< 5	NA	NA	NA	NA	< 5	NA	< 5	NA	< 5	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	80	- -	µg/L	< 5	NA	NA	NA	NA	< 5	NA	< 5	NA	< 5	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromomethane	80	- -	µg/L	< 5	NA	NA	NA	NA	< 5	NA	< 5	NA	< 5	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane (CFC-12)	1,700	- -	µg/L	< 5	NA	NA	NA	NA	< 5	NA	< 5	NA	< 5	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl ether	10	- -	µg/L	< 10	NA	NA	NA	NA	< 10	NA	< 10	NA	< 10	NA	NA	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	74	18	µg/L	< 1	NA	NA	NA	NA	< 1	NA	< 1	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	7.3	6.7	µg/L	< 5	NA	NA	NA	NA	< 5	NA	< 5	NA	< 5	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iodomethane	- -	- -	µg/L	< 1	NA	NA	NA	NA	< 1	NA	< 1	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropyl benzene	800	28	µg/L	< 5	NA	NA	NA	NA	< 5	NA	< 5	NA	< 5	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert butyl ether (MTBE)	40	7,100	µg/L	< 5	NA	NA	NA	NA	< 5	NA	< 5	NA	< 5	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	5.0	1,500	µg/L	< 5	NA	NA	NA	NA	< 5	NA	< 5	NA	< 5	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	520	11	µg/L	< 5	NA	NA	NA	NA	< 5	NA	< 5	NA	< 5	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Butylbenzene	80	- -	µg/L	< 1	NA	NA	NA	NA	< 1	NA	< 1	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Propylbenzene	80	- -	µg/L	< 1	NA	NA	NA	NA	< 1	NA	< 1	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	100	80	µg/L	< 1	NA	NA	NA	NA	< 1	NA	< 1	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	80	- -	µg/L	< 1	NA	NA	NA	NA	< 1	NA	< 1	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	5.0	60	µg/L	< 1	NA	NA	NA	NA	< 1	NA	< 1	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrahydrofuran	95	11,000	µg/L	< 90	NA	NA	NA	NA	< 90	NA	< 90	NA	< 90	NA	NA	< 90	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	790	270	µg/L	< 1	NA	NA	NA	NA	< 1	NA	< 1	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	100	1,500	µg/L	< 1	NA	NA	NA	NA	< 1	NA	< 1	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	- -	- -	µg/L	< 1	NA	NA	NA	NA	< 1	NA	< 1	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,4-Dichloro-2-butene	- -	- -	µg/L	< 1	NA	NA	NA	NA	< 1	NA	< 1	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	5.0	200	µg/L	< 1	NA	NA	NA	NA	< 1	NA	< 1	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane (CFC-11)	2,600	- -	µg/L	< 1	NA	NA	NA	NA	< 1	NA	< 1	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	2.0	13	µg/L	< 1	NA	NA	NA	NA	< 1	NA	< 1	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
m&p-Xylene	280	49	µg/L	< 2	NA	NA	NA	NA	< 2	NA	< 2	NA	< 2	NA	NA	< 2	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	280	49	µg/L	< 1	NA	NA	NA	NA	< 1	NA	< 1	NA	< 1	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	280	49	µg/L	< 2	NA	NA	NA	NA	< 2	NA	< 2	NA	< 2	NA	NA	< 2	NA	NA	NA	NA	NA	NA	NA	NA	NA

See notes on last page.

Table 2
Summary of Groundwater Analytical Results - 2024
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID:	Part 201 Residential Drinking Water	Part 201 Groundwater Surface Water Interface	Units	MW-16-81	MW-16-81	MW-16-82	MW-16-82	MW-16-83	MW-16-84	MW-16-84	MW-16-85	MW-16-85	MW-17-86	MW-17-86	MW-17-87	MW-18-88	MW-18-88	MW-18-89	MW-18-90	MW-18-91	MW-18-92	MW-18-93	MW-18-94	MW-18-95	MW-18-95
Date Collected:				05/15/24	11/13/24	05/14/24	11/13/24	04/10/24	05/14/24	11/13/24	05/16/24	11/12/24	05/14/24	11/14/24	04/09/24	05/22/24	11/19/24	05/20/24	05/20/24	05/21/24	05/21/24	05/21/24	05/21/24	05/21/24	05/21/24	11/19/24
Sample Name:				MW-16-81	MW-16-81_11132	MW-16-82	MW-16-82_11132	MW-16-83	MW-16-84	MW-16-84_11132	MW-16-85	MW-16-85_11122	MW-17-86	MW-17-86_11142	MW-17-87	MW-18-88	MW-18-88_11192	MW-18-89	MW-18-90	MW-18-91	MW-18-92	MW-18-93	MW-18-94	MW-18-95	MW-18-95_11192
Sample Depth (ft. bgs):				70-75	70-75	70-75	70-75	71-76	72-77	72-77	74-79	74-79	73-78	73-78	100-112	6-11	6-11	7-12	15-20	7-12	23-28	77.5-82.5	72-77	4.5-9.5	4.5-9.5
Semi-Volatile Organics (via EPA Method SW5030C/8270D)																									
1,2-Dichlorobenzene	600	13	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Diphenylhydrazine	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	70	99	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	6.6	28	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	75	17	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	73	11	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	370	380	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	7.7	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	730	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	120	5.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	1,800	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorophenol	45	18	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	260	19	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitroaniline	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	20	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3&4-Methylphenol	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	1.1	0.3	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	20	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Bromophenyl phenyl ether	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	150	7.4	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloroaniline	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl phenyl ether	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrophenol	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	1,300	38	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	52	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	43	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	2.1	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	5.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1.5	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	1.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	1.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethoxy)methane	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl)ether	2.0	1.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate (DEHP)	6.0	14	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butyl benzylphthalate (BBP)	1,200	67	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	1.6	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	2.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	- -	4.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	5,500	110	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	73,000	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylphthalate (DBP)	880	9.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate (DnOP)	130	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	210	1.6	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	880	12	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	1.0	0.2	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	15	0.053	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	50	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	7.3	6.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	2.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isophorone	770	1,300	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	520	11	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene	3.4	180	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodi-n-propylamine	5.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	270	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	1.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	52	2.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	4,400	450	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	140	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 2
Summary of Groundwater Analytical Results - 2024
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name: Sample Depth (ft. bgs):	Part 201 Residential Drinking Water	Part 201 Groundwater Surface Water Interface	Units	MW-16-81 05/15/24 MW-16-81 70-75	MW-16-81 11/13/24 MW-16-81_11132 70-75	MW-16-82 05/14/24 MW-16-82 70-75	MW-16-82 11/13/24 MW-16-82_11132 70-75	MW-16-83 04/10/24 MW-16-83 71-76	MW-16-84 05/14/24 MW-16-84 72-77	MW-16-84 11/13/24 MW-16-84_11132 72-77	MW-16-85 05/16/24 MW-16-85 74-79	MW-16-85 11/12/24 MW-16-85_11122 74-79	MW-17-86 05/14/24 MW-17-86 73-78	MW-17-86 11/14/24 MW-17-86_11142 73-78	MW-17-87 04/09/24 MW-17-87 100-112	MW-18-88 05/22/24 MW-18-88 6-11	MW-18-88 11/19/24 MW-18-88_11192 6-11	MW-18-89 05/20/24 MW-18-89 7-12	MW-18-90 05/20/24 MW-18-90 15-20	MW-18-91 05/21/24 MW-18-91 7-12	MW-18-92 05/21/24 MW-18-92 23-28	MW-18-93 05/21/24 MW-18-93 77.5-82.5	MW-18-94 05/21/24 MW-18-94 72-77	MW-18-95 05/21/24 MW-18-95 4.5-9.5	MW-18-95 11/19/24 MW-18-95_11192 4.5-9.5
Per- and Polyfluoroalkyl Substances (PFAS) (via EPA Method 537 Modified)																									
11Cl-PF3OUdS (F-53B Minor)	- -	- -	ng/L	< 6.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 7.1	< 6.7	< 7.7	< 37 [< 7.8]	< 6.6	< 6.7	< 7.4 [< 7.1]	< 7.1	< 7.5	< 6.8
4:2 FTS	- -	- -	ng/L	< 6.7 Q	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 7.1 Q	< 6.7 Q	< 7.7 Q	< 37 Q [< 7.8 Q]	< 6.6 Q	< 6.7 Q	< 7.4 [< 7.1]	< 7.1	< 7.5 Q	< 6.8 Q
6:2 FTS	- -	- -	ng/L	< 6.7 Q	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 7.1 Q	< 6.7 Q	< 7.7 Q	< 37 Q [< 7.8 Q]	< 6.6 Q	< 6.7 Q	< 7.4 Q [< 7.1 Q]	< 7.1 Q	< 7.5 Q	< 6.8
8:2 FTS	- -	- -	ng/L	< 6.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 7.1 Q	< 6.7	< 7.7 Q	< 37 Q [< 7.8 Q]	< 6.6 Q	< 6.7	< 7.4 [< 7.1]	< 7.1	< 7.5 Q	< 6.8
9Cl-PF3ONS (F-53B Major)	- -	- -	ng/L	< 6.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 7.1	< 6.7	< 7.7	< 37 [< 7.8]	< 6.6	< 6.7	< 7.4 [< 7.1]	< 7.1	< 7.5	< 6.8
ADONA	- -	- -	ng/L	< 6.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 7.1	< 6.7	< 7.7	< 37 [< 7.8]	< 6.6	< 6.7	< 7.4 [< 7.1]	< 7.1	< 7.5	< 6.8
Hexafluoropropylene oxide dimer acid (HFPO-DA) (GenX)	370	- -	ng/L	< 6.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 7.1	< 6.7	< 7.7	< 37 [< 7.8]	< 6.6	< 6.7	< 7.4 [< 7.1]	< 7.1	< 7.5	< 6.8
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	- -	- -	ng/L	< 6.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 7.1	< 6.7	< 7.7	< 37 [< 7.8]	< 6.6	< 6.7	< 7.4 [< 7.1]	< 7.1	< 7.5	< 6.8
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA	- -	- -	ng/L	< 6.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 7.1	< 6.7	< 7.7	< 37 [< 7.8]	< 6.6	< 6.7	< 7.4 [< 7.1]	< 7.1	< 7.5	< 6.8
Perfluorobutanesulfonic acid (PFBS)	420	670,000	ng/L	< 3.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**2.4 J**	**2.0 J**	**1.5 J**	**2.1 J [< 3.9]**	**2.1 J**	**0.86 J**	< 3.7 [< 3.6]	< 3.6	< 3.8	**2.1 J**
Perfluorobutanoic acid (PFBA)	- -	- -	ng/L	**8.1**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**10**	**8.6**	**9**	**72 Q [< 3.9 Q]**	**8.6**	**1.3 J**	< 3.7 [< 3.6]	**7.2**	**8.4**	**12**
Perfluorodecanesulfonic acid (PFDS)	- -	- -	ng/L	< 3.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 3.5	< 3.4	< 3.8	< 19 [< 3.9]	**2.0 J**	< 3.4	< 3.7 [< 3.6]	< 3.6	**0.98 J**	< 3.4
Perfluorodecanoic acid (PFDA)	- -	- -	ng/L	< 3.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 3.5	< 3.4	**0.83 J**	**< 19 [2.0 J]**	**0.85 J**	< 3.4	< 3.7 [< 3.6]	< 3.6	**1.2 J**	< 3.4
Perfluorododecanoic acid (PFDoA)	- -	- -	ng/L	< 3.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 3.5	< 3.4	< 3.8	< 19 [< 3.9]	< 3.3	< 3.4	< 3.7 [< 3.6]	< 3.6	< 3.8	< 3.4
Perfluoroheptanesulfonic Acid (PFHpS)	- -	- -	ng/L	< 3.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**2.6 J**	**3.8**	**2.3 J**	**21 [18]**	**0.73 J**	< 3.4	< 3.7 [< 3.6]	< 3.6	< 3.8	**0.78 J**
Perfluoroheptanoic acid (PFHpA)	- -	- -	ng/L	**2.8 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.93 J**	**0.81 J**	**3.5 J**	**4.1 J [3.8 J]**	**2.3 J**	< 3.4	< 3.7 [< 3.6]	< 3.6	**1.4 J**	< 3.4
Perfluorohexanesulfonic acid (PFHxS)	51	210	ng/L	< 3.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**4.5**	**6.8**	**5.2**	**16 J [16]**	**2.6 J**	**0.47 J**	< 3.7 [< 3.6]	< 3.6	**0.79 J**	**1.7 J**
Perfluorohexanoic acid (PFHxA)	400,000	- -	ng/L	**6.2**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 3.5	< 3.4	**5.4**	**5.4 J [4.8]**	**2.7 J**	< 3.4	< 3.7 [< 3.6]	< 3.6	< 3.8	< 3.4
Perfluorononanesulfonic acid (PFNS)	- -	- -	ng/L	< 3.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 3.5	< 3.4	< 3.8	< 19 [< 3.9]	< 3.3	< 3.4	< 3.7 [< 3.6]	< 3.6	< 3.8	< 3.4
Perfluorononanoic acid (PFNA)	6.0	30	ng/L	< 3.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.50 J**	**0.54 J**	**1.6 J**	**< 19 [1.5 J]**	**1.2 J**	< 3.4	< 3.7 [< 3.6]	< 3.6	**1.6 J**	**1.0 J**
Perfluorooctane Sulfonamide (PFOSA)	- -	- -	ng/L	< 3.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 3.5	< 3.4	< 3.8	**< 19 [0.85 J]**	< 3.3	< 3.4	< 3.7 [< 3.6]	< 3.6	< 3.8	< 3.4
Perfluorooctane sulfonic acid (PFOS)	16	12	ng/L	< 3.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**220**	**310**	**120**	**920 [1100]**	**34**	< 3.4	< 3.7 [< 3.6]	< 3.6	**56**	**42**
Perfluorooctanoic acid (PFOA)	8.0	170	ng/L	**0.70 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**7.4**	**9.7**	**13**	**14 J [14]**	**5.8**	**1.2 J**	< 3.7 [< 3.6]	< 3.6	**4.5**	**4.1**
Perfluoropentanesulfonic acid (PFPeS)	- -	- -	ng/L	< 3.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 3.5	**0.89 J**	< 3.8	**< 19 [2.2 J]**	< 3.3	< 3.4	< 3.7 [< 3.6]	< 3.6	< 3.8	< 3.4
Perfluoropentanoic acid (PFPeA)	- -	- -	ng/L	**9.6**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 3.5	< 3.4	< 3.8	< 19 Q [< 3.9 Q]	**3.5**	< 3.4	< 3.7 [< 3.6]	**1.6 J**	**2.2 J**	< 3.4
Perfluorotetradecanoic acid (PFTeA)	- -	- -	ng/L	< 3.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 3.5	< 3.4	< 3.8	< 19 [< 3.9]	< 3.3	< 3.4	< 3.7 [< 3.6]	< 3.6	< 3.8	< 3.4
Perfluorotridecanoic Acid (PFTriA)	- -	- -	ng/L	< 3.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 3.5	< 3.4	< 3.8	< 19 [< 3.9]	< 3.3	< 3.4	< 3.7 [< 3.6]	< 3.6	< 3.8	< 3.4
Perfluoroundecanoic acid (PFUnA)	- -	- -	ng/L	< 3.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 3.5	< 3.4	< 3.8	< 19 [< 3.9]	< 3.3	< 3.4	< 3.7 [< 3.6]	< 3.6	< 3.8	< 3.4
Metals (EPA Method 200.8, Standard Methods 3500-Cr)																									
Arsenic	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 0.002	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic (dissolved)	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium III (trivalent)	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium III (trivalent) (dissolved)	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium VI (hexavalent)	0.1	0.011	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 0.01	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1.0	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper (dissolved)	1.0	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 0.003	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead (dissolved)	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel (dissolved)	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium (dissolved)	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See notes on last page.

Table 2
Summary of Groundwater Analytical Results - 2024
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID:	Part 201 Residential Drinking Water	Part 201 Groundwater Surface Water Interface	Units	MW-18-97	MW-18-98	MW-18-98	MW-18-99	MW-18-99	MW-18-100	MW-18-100	MW-18-101	MW-18-101	MW-18-102	MW-18-103	MW-18-104	MW-18-105	MW-18-105	MW-19-107	MW-19-107	MW-19-108	MW-19-108	MW-19-111	MW-19-111	MW-19-112	MW-19-113
Date Collected:				05/21/24	05/20/24	11/19/24	05/20/24	11/20/24	05/21/24	11/20/24	05/21/24	11/18/24	05/20/24	05/20/24	05/20/24	05/20/24	11/20/24	05/21/24	11/19/24	05/21/24	11/19/24	05/21/24	11/19/24	05/21/24	05/21/24	05/21/24
Sample Name:				MW-18-97	MW-18-98	MW-18-98_11192	MW-18-99	MW-18-99_11202	MW-18-100	MW-18-100_11202	MW-18-101	MW-18-101_11182	MW-18-102	MW-18-103	MW-18-104	MW-18-105	MW-18-105_11202	MW-19-107	MW-19-107_11192	MW-19-108	MW-19-108_11192	MW-19-111	MW-19-111_11192	MW-19-112	MW-19-113_05212
Sample Depth (ft. bgs):				85-90	7-12	7-12	9-14	9-14	8-13	8-13	80-85	80-85	10-15	5-10	5-10	6-11	6-11	23-28	23-28	23-28	23-28	20-25	20-25	9-14	16-21
Field Parameters																									
pH	6.5 to 8.5	6.5 to 9.0	s.u.	6.9	7.39	7.21	8.06	7.77	7.54	7.47	6.91	6.89	7.15	7.04	7.672	6.96	7.15	6.71	6.76	6.67	6.68	6.67	6.69	6.37	NR
Conductivity	- -	- -	mS/cm	1.502	0.996	0.629	1.121	1.165	1.38	1.259	4.424	4.915	0.666	0.739	0.672	0.621	0.593	0.993	0.785	1.3	1.276	1.254	1.049	8.532	NR
Turbidity	- -	- -	NTU	621.38	14.3	2.74	6.78	3.42	5.04	7.38	234.83	44.51	17.5	6.23	13.02	3.81	4.71	50.93	17.61	2.42	115	3.87	44.9	9.95	NR
Dissolved oxygen (DO)	- -	- -	mg/L	-0.04	1.4	2.37	0.37	0.01	3.27	4.67	-0.22	0.84	2.08	1.18	1.9	-0.03	1.46	0.07	2.08	0.13	0.02	0.66	0.03	-0.09	NR
Temperature	- -	- -	Deg C	15.4	15.1	15.8	15.1	14.1	16.6	14.9	14.6	11.7	12.6	13.5	13.4	12	12.2	13.2	15.2	12.1	15.1	13.1	14.1	17	NR
Oxidation reduction potential (ORP)	- -	- -	millivolts	-85	159.3	155.1	-117.4	-131.4	147.2	67	-92.2	-85.3	175.1	1.18	182.7	105.7	119.7	-15.6	20.1	121.2	53.7	159.6	123.2	-79.4	NR
Volatile Organics (via EPA Method SW5030C/8260C)																									
1,1-Dichloroethane	880	740	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	7.0	130	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	200	89	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1,2-Tetrachloroethane	77	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	5.0	330	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	8.5	78	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane (DBCP)	0.2	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	600	13	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	5.0	360	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	5.0	230	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichlorobenzene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	42	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trimethylbenzene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	70	99	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	63	17	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	6.6	28	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	72	45	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	75	17	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	7.2	280	µg/L	NA	NA	NA	NA	NA	NA	NA	**2**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	1,000	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	260	19	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Phenylbutane (sec-Butylbenzene)	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	730	1,700	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrylonitrile	2.6	2.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	5.0	200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromobenzene	18	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane (Methyl bromide)	10	5.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	800	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon tetrachloride	5.0	38	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	100	25	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobromomethane	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	430	1,100	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform (Trichloromethane)	80	350	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane (Methyl chloride)	260	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	70	620	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cymene (p-Isopropyltoluene)	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromomethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane (CFC-12)	1,700	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl ether	10	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	74	18	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	7.3	6.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iodomethane	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropyl benzene	800	28	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert butyl ether (MTBE)	40	7,100	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	5.0	1,500	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	520	11	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Butylbenzene	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Propylbenzene	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	100	80	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	5.0	60	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrahydrofuran	95	11,000	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	790	270	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	100	1,500	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,4-Dichloro-2-butene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	5.0	200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane (CFC-11)	2,600	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	2.0	13	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m&p-Xylene	280	49	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	280	49	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	280	49	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See notes on last page.

Table 2
Summary of Groundwater Analytical Results - 2024
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name: Sample Depth (ft. bgs):	Part 201 Residential Drinking Water	Part 201 Groundwater Surface Water Interface	Units	MW-18-97 05/21/24 MW-18-97 85-90	MW-18-98 05/20/24 MW-18-98 7-12	MW-18-98 11/19/24 MW-18-98_11192 7-12	MW-18-99 05/20/24 MW-18-99 9-14	MW-18-99 11/20/24 MW-18-99_11202 9-14	MW-18-100 05/21/24 MW-18-100 8-13	MW-18-100 11/20/24 MW-18-100_11202 8-13	MW-18-101 05/21/24 MW-18-101 80-85	MW-18-101 11/18/24 MW-18-101_11182 80-85	MW-18-102 05/20/24 MW-18-102 10-15	MW-18-103 05/20/24 MW-18-103 5-10	MW-18-104 05/20/24 MW-18-104 5-10	MW-18-105 05/20/24 MW-18-105 6-11	MW-18-105 11/20/24 MW-18-105_11202 6-11	MW-19-107 05/21/24 MW-19-107 23-28	MW-19-107 11/19/24 MW-19-107_11192 23-28	MW-19-108 05/21/24 MW-19-108 23-28	MW-19-108 11/19/24 MW-19-108_11192 23-28	MW-19-111 05/21/24 MW-19-111 20-25	MW-19-111 11/19/24 MW-19-111_11192 20-25	MW-19-112 05/21/24 MW-19-112 9-14	MW-19-113 05/21/24 MW-19-113_05212 16-21
Semi-Volatile Organics (via EPA Method SW5030C/8270D)																									
1,2-Dichlorobenzene	600	13	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Diphenylhydrazine	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	70	99	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	6.6	28	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	75	17	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	73	11	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	370	380	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	7.7	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	730	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	120	5.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	1,800	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorophenol	45	18	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	260	19	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitroaniline	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	20	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3&4-Methylphenol	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	1.1	0.3	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	20	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Bromophenyl phenyl ether	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	150	7.4	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloroaniline	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl phenyl ether	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrophenol	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	1,300	38	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	52	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	43	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	2.1	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	5.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1.5	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	1.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	1.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethoxy)methane	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl)ether	2.0	1.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate (DEHP)	6.0	14	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butyl benzylphthalate (BBP)	1,200	67	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	1.6	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	2.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	- -	4.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	5,500	110	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	73,000	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylphthalate (DBP)	880	9.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate (DnOP)	130	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	210	1.6	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	880	12	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	1.0	0.2	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	15	0.053	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	50	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	7.3	6.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	2.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isophorone	770	1,300	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	520	11	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene	3.4	180	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodi-n-propylamine	5.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	270	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	1.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	52	2.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	4,400	450	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	140	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 2
Summary of Groundwater Analytical Results - 2024
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name: Sample Depth (ft. bgs):	Part 201 Residential Drinking Water	Part 201 Groundwater Surface Water Interface	Units	MW-18-97 05/21/24 MW-18-97 85-90	MW-18-98 05/20/24 MW-18-98 7-12	MW-18-98 11/19/24 MW-18-98_11192 7-12	MW-18-99 05/20/24 MW-18-99 9-14	MW-18-99 11/20/24 MW-18-99_11202 9-14	MW-18-100 05/21/24 MW-18-100 8-13	MW-18-100 11/20/24 MW-18-100_11202 8-13	MW-18-101 05/21/24 MW-18-101 80-85	MW-18-101 11/18/24 MW-18-101_11182 80-85	MW-18-102 05/20/24 MW-18-102 10-15	MW-18-103 05/20/24 MW-18-103 5-10	MW-18-104 05/20/24 MW-18-104 5-10	MW-18-105 05/20/24 MW-18-105 6-11	MW-18-105 11/20/24 MW-18-105_11202 6-11	MW-19-107 05/21/24 MW-19-107 23-28	MW-19-107 11/19/24 MW-19-107_11192 23-28	MW-19-108 05/21/24 MW-19-108 23-28	MW-19-108 11/19/24 MW-19-108_11192 23-28	MW-19-111 05/21/24 MW-19-111 20-25	MW-19-111 11/19/24 MW-19-111_11192 20-25	MW-19-112 05/21/24 MW-19-112 9-14	MW-19-113 05/21/24 MW-19-113_05212 16-21
Per- and Polyfluoroalkyl Substances (PFAS) (via EPA Method 537 Modified)																										
11Cl-PF3OUdS (F-53B Minor)	- -	- -	ng/L	< 7.1	< 7.7	< 7.1	< 7.5	< 6.7	< 7.4	< 7.0	< 7.9	< 40	< 7.8	< 7.5	< 7.7	< 7.3	< 6.8 [< 6.8]	< 6.7	< 7.3	< 6.9	< 40	< 6.8	< 6.9	< 80	< 8.1
4:2 FTS	- -	- -	ng/L	< 7.1 Q	< 7.7 Q	< 7.1 Q	< 7.5 Q	< 6.7 Q	< 7.4	< 7.0	< 7.9	< 40	< 7.8	< 7.5	< 7.7	< 7.3 Q	< 6.8 [< 6.8]	< 6.7 Q	< 7.3	< 6.9 Q	< 40	< 6.8 Q	< 6.9	< 80 Q	< 8.1 Q
6:2 FTS	- -	- -	ng/L	< 7.1 Q	< 7.7 Q	< 7.1	< 7.5 Q	< 6.7	< 7.4 Q	< 7.0	< 7.9	< 40	< 7.8 Q	< 7.5 Q	< 7.7 Q	< 7.3 Q	< 6.8 [< 6.8]	< 6.7 Q	< 7.3	< 6.9 Q	< 40	< 6.8 Q	< 6.9	< 80 Q	< 8.1 Q
8:2 FTS	- -	- -	ng/L	< 7.1	< 7.7	< 7.1	< 7.5	< 6.7	< 7.4	< 7.0	< 7.9	< 40	< 7.8	< 7.5	< 7.7	< 7.3	< 6.8 [< 6.8]	< 6.7	< 7.3	< 6.9	< 40	< 6.8	< 6.9	< 80	< 8.1
9Cl-PF3ONS (F-53B Major)	- -	- -	ng/L	< 7.1	< 7.7	< 7.1	< 7.5	< 6.7	< 7.4	< 7.0	< 7.9	< 40	< 7.8	< 7.5	< 7.7	< 7.3	< 6.8 [< 6.8]	< 6.7	< 7.3	< 6.9	< 40	< 6.8	< 6.9	< 80	< 8.1
ADONA	- -	- -	ng/L	< 7.1	< 7.7	< 7.1	< 7.5	< 6.7	< 7.4	< 7.0	< 7.9	< 40	< 7.8	< 7.5	< 7.7	< 7.3	< 6.8 [< 6.8]	< 6.7	< 7.3	< 6.9	< 40	< 6.8	< 6.9	< 80	< 8.1
Hexafluoropropylene oxide dimer acid (HFPO-DA) (GenX)	370	- -	ng/L	< 7.1	< 7.7	< 7.1	< 7.5	< 6.7	< 7.4	< 7.0	< 7.9	< 40	< 7.8	< 7.5	< 7.7	< 7.3	< 6.8 [< 6.8]	< 6.7	< 7.3	< 6.9	< 40	< 6.8	< 6.9	< 80	< 8.1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	- -	- -	ng/L	< 7.1	< 7.7	< 7.1	< 7.5	< 6.7	< 7.4	< 7.0	< 7.9	< 40	< 7.8	< 7.5	< 7.7	< 7.3	< 6.8 [< 6.8]	< 6.7	< 7.3	< 6.9	< 40	< 6.8	< 6.9	< 80	< 8.1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA	- -	- -	ng/L	< 7.1	< 7.7	< 7.1	< 7.5	< 6.7	< 7.4	< 7.0	< 7.9	< 40	< 7.8	< 7.5	< 7.7	< 7.3	< 6.8 [< 6.8]	< 6.7	< 7.3	< 6.9	< 40	< 6.8	< 6.9	< 80	< 8.1
Perfluorobutanesulfonic acid (PFBS)	420	670,000	ng/L	**0.40 J**	**0.68 J**	**0.75 J**	**1.3 J**	**1.4 J**	**1.6 J**	**2.1 J**	< 4.0	< 20	< 3.9	**8.5**	**0.97 J**	**4.9**	**4.9 [4.6]**	**2.4 J**	**2.7 J**	**1.5 J**	**2.5 J**	**1.4 J**	**1.4 J**	< 40	**1.6 J**
Perfluorobutanoic acid (PFBA)	- -	- -	ng/L	**1.8 J**	**8.7**	**2.3 J**	**12**	**13**	**11**	**11**	**4.6**	**4.0 J**	< 3.9	**2.8 J**	< 3.8	**1.9 J**	**1.3 J [1.3 J]**	**2.9 J**	**2.4 J**	**1.4 J**	< 20	**2.2 J**	**2.5 J**	< 40	**2.3 J**
Perfluorodecanesulfonic acid (PFDS)	- -	- -	ng/L	< 3.5	< 3.8	< 3.5	< 3.8	< 3.3	< 3.7	< 3.5	< 4.0	< 20	< 3.9	< 3.7	< 3.8	< 3.7	< 3.4 [< 3.4]	< 3.4	< 3.7	< 3.5	< 20	< 3.4	< 3.4	< 40	< 4.1
Perfluorodecanoic acid (PFDA)	- -	- -	ng/L	< 3.5	< 3.8	< 3.5	**0.84 J**	**1.1 J**	< 3.7	< 3.5	< 4.0	< 20	< 3.9	< 3.7	< 3.8	< 3.7	< 3.4 [< 3.4]	< 3.4	< 3.7	< 3.5	< 20	< 3.4	< 3.4	< 40	< 4.1
Perfluorododecanoic acid (PFDoA)	- -	- -	ng/L	< 3.5	< 3.8	< 3.5	< 3.8	< 3.3	< 3.7	< 3.5	< 4.0	< 20	< 3.9	< 3.7	< 3.8	< 3.7	< 3.4 [< 3.4]	< 3.4	< 3.7	< 3.5	< 20	< 3.4	< 3.4	< 40	< 4.1
Perfluoroheptanesulfonic Acid (PFHpS)	- -	- -	ng/L	< 3.5	< 3.8	< 3.5	**0.64 J**	**1.0 J**	< 3.7	< 3.5	< 4.0	< 20	< 3.9	< 3.7	< 3.8	< 3.7	< 3.4 [< 3.4]	< 3.4	< 3.7	< 3.5	< 20	< 3.4	< 3.4	< 40	< 4.1
Perfluoroheptanoic acid (PFHpA)	- -	- -	ng/L	< 3.5	**1.8 J**	< 3.5	**2.6 J**	**3.1 J**	**1.9 J**	**3.0 J**	< 4.0	< 20	< 3.9	< 3.7	< 3.8	< 3.7	< 3.4 [< 3.4]	**0.73 J**	**0.71 J**	**0.57 J**	< 20	**0.87 J**	< 3.4	< 40	< 4.1
Perfluorohexanesulfonic acid (PFHxS)	51	210	ng/L	< 3.5	**0.60 J**	**0.63 J**	**1.6 J**	**2.3 J**	**2.4 J**	**3.2 J**	< 4.0	< 20	< 3.9	63	**0.61 J**	**1.7 J**	**1.6 J [1.7 J]**	**3.9**	**7.1**	**1.2 J**	< 20	**1.6 J**	**1.5 J**	< 40	**1.2 J**
Perfluorohexanoic acid (PFHxA)	400,000	- -	ng/L	< 3.5	**2.7 J**	< 3.5	**4.6**	**7.9**	**4.8**	**5.9**	< 4.0	< 20	< 3.9	< 3.7	< 3.8	< 3.7	< 3.4 [< 3.4]	< 3.4	< 3.7	< 3.5	< 20	**1.9 J**	< 3.4	< 40	< 4.1
Perfluorononanesulfonic acid (PFNS)	- -	- -	ng/L	< 3.5	< 3.8	< 3.5	< 3.8	< 3.3	< 3.7	< 3.5	< 4.0	< 20	< 3.9	< 3.7	< 3.8	< 3.7	< 3.4 [< 3.4]	< 3.4	< 3.7	< 3.5	< 20	< 3.4	< 3.4	< 40	< 4.1
Perfluorononanoic acid (PFNA)	6.0	30	ng/L	< 3.5	**1.7 J**	**0.47 J**	**1.0 J**	**1.5 J**	< 3.7	< 3.5	< 4.0	< 20	< 3.9	< 3.7	< 3.8	< 3.7	< 3.4 [< 3.4]	< 3.4	< 3.7	< 3.5	< 20	< 3.4	< 3.4	< 40	< 4.1
Perfluorooctane Sulfonamide (PFOSA)	- -	- -	ng/L	< 3.5	< 3.8	< 3.5	< 3.8	< 3.3	< 3.7	< 3.5	< 4.0	< 20	< 3.9	< 3.7	< 3.8	< 3.7	< 3.4 [< 3.4]	< 3.4	< 3.7	< 3.5	< 20	< 3.4	< 3.4	< 40	< 4.1
Perfluorooctane sulfonic acid (PFOS)	16	12	ng/L	< 3.5	**140**	**77**	**47**	**75**	< 3.7	< 3.5	< 4.0	< 20	< 3.9	**3.4 J**	**3.6 J**	**6.5**	**3.4 [4.5]**	**3.2 J**	**2.5 J**	**4.5**	< 20	< 3.4	< 3.4	< 40	**3.5 J**
Perfluorooctanoic acid (PFOA)	8.0	170	ng/L	< 3.5	**2.5 J**	< 3.5	**3.9**	**7.7**	**2.9 J**	**4.1**	< 4.0	< 20	< 3.9	< 3.7	< 3.8	**1.0 J**	< 3.4 [< 3.4]	**4.7**	**3.4 J**	**4.3**	< 20	**6.5**	**5.5**	< 40	**3.1 J**
Perfluoropentanesulfonic acid (PFPeS)	- -	- -	ng/L	< 3.5	< 3.8	< 3.5	< 3.8	< 3.3	< 3.7	< 3.5	< 4.0	< 20	< 3.9	**6.4**	< 3.8	< 3.7	< 3.4 [< 3.4]	**0.53 J**	< 3.7	< 3.5	< 20	< 3.4	< 3.4	< 40	< 4.1
Perfluoropentanoic acid (PFPeA)	- -	- -	ng/L	**0.56 J**	**1.5 J**	< 3.5	**3.6 J**	**5.6**	**3.0 J**	**4.2**	**0.94 J**	< 20	< 3.9	**0.72 J**	< 3.8	< 3.7	< 3.4 [< 3.4]	**1.2 J**	**1.3 J**	**0.49 J**	< 20	**0.84 J**	< 3.4	< 40	< 4.1
Perfluorotetradecanoic acid (PFTeA)	- -	- -	ng/L	< 3.5	< 3.8	< 3.5	< 3.8	< 3.3	< 3.7	< 3.5	< 4.0	< 20	< 3.9	< 3.7	< 3.8	< 3.7	< 3.4 [< 3.4]	< 3.4	< 3.7	< 3.5	< 20	< 3.4	< 3.4	< 40	< 4.1
Perfluorotridecanoic Acid (PFTriA)	- -	- -	ng/L	< 3.5	< 3.8	< 3.5	< 3.8	< 3.3	< 3.7	< 3.5	< 4.0	< 20	< 3.9	< 3.7	< 3.8	< 3.7	< 3.4 [< 3.4]	< 3.4	< 3.7	< 3.5	< 20	< 3.4	< 3.4	< 40	< 4.1
Perfluoroundecanoic acid (PFUnA)	- -	- -	ng/L	< 3.5	< 3.8	< 3.5	< 3.8	< 3.3	< 3.7	< 3.5	< 4.0	< 20	< 3.9	< 3.7	< 3.8	< 3.7	< 3.4 [< 3.4]	< 3.4	< 3.7	< 3.5	< 20	< 3.4	< 3.4	< 40	< 4.1
Metals (EPA Method 200.8, Standard Methods 3500-Cr)																										
Arsenic	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic (dissolved)	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium III (trivalent)	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium III (trivalent) (dissolved)	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium VI (hexavalent)	0.1	0.011	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1.0	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper (dissolved)	1.0	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead (dissolved)	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel (dissolved)	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium (dissolved)	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See notes on last page.

Table 2
Summary of Groundwater Analytical Results - 2024
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name: Sample Depth (ft. bgs):	Part 201 Residential Drinking Water	Part 201 Groundwater Surface Water Interface	Units	MW-19-114 05/20/24 MW-19-114 6-11	MW-19-115 05/15/24 MW-19-115 72.5-77.5	MW-19-115 11/14/24 MW-19-115_11142 72.5-77.5	MW-19-116 05/15/24 MW-19-116 65-70	MW-19-116 11/14/24 MW-19-116_11142 65-70	MW-19-117 05/15/24 MW-19-117 54-59	MW-19-117 11/15/24 MW-19-117_11152 54-59	MW-19-118D 05/20/24 MW-19-118D 175-190	MW-19-118S 04/09/24 MW-19-118S 145-160	MW-19-119D 05/20/24 MW-19-119D 180-195	MW-19-119S 05/20/24 MW-19-119S 145-160	MW-19-120 05/14/24 MW-19-120 66-71	MW-19-120 11/15/24 MW-19-120_11152 66-71	MW-19-121 02/12/24 MW-19-121 66-71	MW-19-121 05/14/24 MW-19-121 66-71	MW-19-121 11/14/24 MW-19-121_11142 66-71	MW-19-122 02/12/24 MW-19-122 59-64	MW-19-122 05/14/24 MW-19-122 59-64	MW-19-122 11/15/24 MW-19-122_11152 59-64	MW-19-123 02/12/24 MW-19-123 66-71	MW-19-123 05/14/24 MW-19-123 66-71	MW-19-123 11/14/24 MW-19-123_11142 66-71
Field Parameters																									
pH	6.5 to 8.5	6.5 to 9.0	s.u.	7.12	6.82	6.84	6.94	6.85	6.87	6.75	7.36	7.54	7.2	7.12	7.24	7.19	7.65	6.58	7.26	6.65	6.71	6.72	6.78	6.68	6.79
Conductivity	- -	- -	mS/cm	0.555	3.187	3.134	1.416	1.449	1.176	1.145	1.993	2.282	1.261	1.328	1.22	1.505	1.64	2.4	2.013	5.125	4.016	3.563	2.21	1.792	1.392
Turbidity	- -	- -	NTU	6.14	38.39	40.68	111.11	4.59	66.36	87.78	68	77.69	9.62	9.56	35.94	56.15	5.9	17.83	5.87	43.47	24.63	36	9.56	5.89	4.45
Dissolved oxygen (DO)	- -	- -	mg/L	0.02	0.5	1.41	0.11	1.46	0.11	0.37	3.95	5.91	5.65	1.48	4.23	4.07	8.08	2.03	4.18	2.88	3.4	3.23	6.44	6.03	6.36
Temperature	- -	- -	Deg C	12.1	21	11.4	17.4	12.8	16.7	13.9	30.8	15.4	22.3	22.9	15.2	12.3	13.8	15.1	11.9	12.9	15	12.9	12.1	15.6	9.8
Oxidation reduction potential (ORP)	- -	- -	millivolts	177.7	-40.8	-14.2	-86.5	-72.8	-72.6	-32.6	177.1	79.2	67.4	68.9	192.3	34.7	229.5	207.1	106.9	-35.2	183.5	76.8	-18.9	183.2	99.9
Volatile Organics (via EPA Method SW5030C/8260C)																									
1,1-Dichloroethane	880	740	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	7.0	130	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	200	89	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1,2-Tetrachloroethane	77	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	5.0	330	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	8.5	78	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane (DBCP)	0.2	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	600	13	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	5.0	360	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	5.0	230	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichlorobenzene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	42	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trimethylbenzene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	70	99	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	63	17	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	6.6	28	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	72	45	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	75	17	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	7.2	280	µg/L	NA	**8**	**7**	**148**	**111**	< 1	< 1	< 0.20*	**0.73***	**0.40* [0.37*]**	**0.41***	**7**	**8**	< 1	< 1	< 1	**6**	**3**	**2**	**48**	**24**	**19**
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	1,000	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	260	19	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Phenylbutane (sec-Butylbenzene)	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	730	1,700	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrylonitrile	2.6	2.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	5.0	200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromobenzene	18	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane (Methyl bromide)	10	5.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	800	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon tetrachloride	5.0	38	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	100	25	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobromomethane	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	430	1,100	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform (Trichloromethane)	80	350	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane (Methyl chloride)	260	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	70	620	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cymene (p-Isopropyltoluene)	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromomethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane (CFC-12)	1,700	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl ether	10	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	74	18	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	7.3	6.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iodomethane	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropyl benzene	800	28	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert butyl ether (MTBE)	40	7,100	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	5.0	1,500	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	520	11	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Butylbenzene	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Propylbenzene	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	100	80	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	5.0	60	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrahydrofuran	95	11,000	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 90	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	790	270	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	100	1,500	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,4-Dichloro-2-butene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	5.0	200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane (CFC-11)	2,600	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	2.0	13	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m&p-Xylene	280	49	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	280	49	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	280	49	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See notes on last page.

Table 2
Summary of Groundwater Analytical Results - 2024
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name: Sample Depth (ft. bgs):	Part 201 Residential Drinking Water	Part 201 Groundwater Surface Water Interface	Units	MW-19-114 05/20/24 MW-19-114 6-11	MW-19-115 05/15/24 MW-19-115 72.5-77.5	MW-19-115 11/14/24 MW-19-115_11142 72.5-77.5	MW-19-116 05/15/24 MW-19-116 65-70	MW-19-116 11/14/24 MW-19-116_11142 65-70	MW-19-117 05/15/24 MW-19-117 54-59	MW-19-117 11/15/24 MW-19-117_11152 54-59	MW-19-118D 05/20/24 MW-19-118D 175-190	MW-19-118S 04/09/24 MW-19-118S 145-160	MW-19-119D 05/20/24 MW-19-119D 180-195	MW-19-119S 05/20/24 MW-19-119S 145-160	MW-19-120 05/14/24 MW-19-120 66-71	MW-19-120 11/15/24 MW-19-120_11152 66-71	MW-19-121 02/12/24 MW-19-121 66-71	MW-19-121 05/14/24 MW-19-121 66-71	MW-19-121 11/14/24 MW-19-121_11142 66-71	MW-19-122 02/12/24 MW-19-122 59-64	MW-19-122 05/14/24 MW-19-122 59-64	MW-19-122 11/15/24 MW-19-122_11152 59-64	MW-19-123 02/12/24 MW-19-123 66-71	MW-19-123 05/14/24 MW-19-123 66-71	MW-19-123 11/14/24 MW-19-123_11142 66-71
Semi-Volatile Organics (via EPA Method SW5030C/8270D)																									
1,2-Dichlorobenzene	600	13	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Diphenylhydrazine	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	70	99	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	6.6	28	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	75	17	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	73	11	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	370	380	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	7.7	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	730	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	120	5.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	1,800	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorophenol	45	18	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	260	19	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitroaniline	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	20	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3&4-Methylphenol	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	1.1	0.3	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	20	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Bromophenyl phenyl ether	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	150	7.4	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloroaniline	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl phenyl ether	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrophenol	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	1,300	38	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	52	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	43	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	2.1	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	5.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1.5	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	1.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	1.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethoxy)methane	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl)ether	2.0	1.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate (DEHP)	6.0	14	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butyl benzylphthalate (BBP)	1,200	67	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	1.6	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	2.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	- -	4.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	5,500	110	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	73,000	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylphthalate (DBP)	880	9.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate (DnOP)	130	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	210	1.6	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	880	12	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	1.0	0.2	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	15	0.053	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	50	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	7.3	6.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	2.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isophorone	770	1,300	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	520	11	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene	3.4	180	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodi-n-propylamine	5.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	270	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	1.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	52	2.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	4,400	450	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	140	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 2
Summary of Groundwater Analytical Results - 2024
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name: Sample Depth (ft. bgs):	Part 201 Residential Drinking Water	Part 201 Groundwater Surface Water Interface	Units	MW-19-114 05/20/24 MW-19-114 6-11	MW-19-115 05/15/24 MW-19-115 72.5-77.5	MW-19-115 11/14/24 MW-19-115_11142 72.5-77.5	MW-19-116 05/15/24 MW-19-116 65-70	MW-19-116 11/14/24 MW-19-116_11142 65-70	MW-19-117 05/15/24 MW-19-117 54-59	MW-19-117 11/15/24 MW-19-117_11152 54-59	MW-19-118D 05/20/24 MW-19-118D 175-190	MW-19-118S 04/09/24 MW-19-118S 145-160	MW-19-119D 05/20/24 MW-19-119D 180-195	MW-19-119S 05/20/24 MW-19-119S 145-160	MW-19-120 05/14/24 MW-19-120 66-71	MW-19-120 11/15/24 MW-19-120_11152 66-71	MW-19-121 02/12/24 MW-19-121 66-71	MW-19-121 05/14/24 MW-19-121 66-71	MW-19-121 11/14/24 MW-19-121_11142 66-71	MW-19-122 02/12/24 MW-19-122 59-64	MW-19-122 05/14/24 MW-19-122 59-64	MW-19-122 11/15/24 MW-19-122_11152 59-64	MW-19-123 02/12/24 MW-19-123 66-71	MW-19-123 05/14/24 MW-19-123 66-71	MW-19-123 11/14/24 MW-19-123_11142 66-71
Per- and Polyfluoroalkyl Substances (PFAS) (via EPA Method 537 Modified)																									
11Cl-PF3OUdS (F-53B Minor)	- -	- -	ng/L	< 7.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4:2 FTS	- -	- -	ng/L	< 7.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
6:2 FTS	- -	- -	ng/L	< 7.4 Q	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
8:2 FTS	- -	- -	ng/L	< 7.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9Cl-PF3ONS (F-53B Major)	- -	- -	ng/L	< 7.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ADONA	- -	- -	ng/L	< 7.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexafluoropropylene oxide dimer acid (HFPO-DA) (GenX)	370	- -	ng/L	< 7.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	- -	- -	ng/L	< 7.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA	- -	- -	ng/L	< 7.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorobutanesulfonic acid (PFBS)	420	670,000	ng/L	**1.3 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorobutanoic acid (PFBA)	- -	- -	ng/L	**5.5**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorodecanesulfonic acid (PFDS)	- -	- -	ng/L	< 3.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorodecanoic acid (PFDA)	- -	- -	ng/L	< 3.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorododecanoic acid (PFDoA)	- -	- -	ng/L	< 3.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanesulfonic Acid (PFHpS)	- -	- -	ng/L	< 3.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid (PFHpA)	- -	- -	ng/L	< 3.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid (PFHxS)	51	210	ng/L	**0.81 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanoic acid (PFHxA)	400,000	- -	ng/L	< 3.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanesulfonic acid (PFNS)	- -	- -	ng/L	< 3.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid (PFNA)	6.0	30	ng/L	< 3.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonamide (PFOSA)	- -	- -	ng/L	< 3.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane sulfonic acid (PFOS)	16	12	ng/L	**2.6 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic acid (PFOA)	8.0	170	ng/L	< 3.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoropentanesulfonic acid (PFPeS)	- -	- -	ng/L	< 3.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoropentanoic acid (PFPeA)	- -	- -	ng/L	< 3.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorotetradecanoic acid (PFTeA)	- -	- -	ng/L	< 3.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorotridecanoic Acid (PFTriA)	- -	- -	ng/L	< 3.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroundecanoic acid (PFUnA)	- -	- -	ng/L	< 3.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals (EPA Method 200.8, Standard Methods 3500-Cr)																									
Arsenic	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic (dissolved)	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium III (trivalent)	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium III (trivalent) (dissolved)	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium VI (hexavalent)	0.1	0.011	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1.0	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper (dissolved)	1.0	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead (dissolved)	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel (dissolved)	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium (dissolved)	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See notes on last page.

Table 2
Summary of Groundwater Analytical Results - 2024
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name: Sample Depth (ft. bgs):	Part 201 Residential Drinking Water	Part 201 Groundwater Surface Water Interface	Units	MW-19-124 05/14/24 MW-19-124 65-70	MW-19-124 11/15/24 W-19-124_11152 65-70	MW-19-125 05/20/24 MW-19-125 100-115	MW-20-126 02/12/24 MW-20-126 69-74	MW-20-126 04/10/24 MW-20-126 69-74	MW-20-126 11/13/24 W-20-126_11132 69-74	MW-20-127 02/12/24 MW-20-127 72-77	MW-20-127 05/15/24 MW-20-127 72-77	MW-20-127 11/14/24 W-20-127_11142 72-77	MW-20-128 05/15/24 MW-20-128 65-70	MW-20-128 11/15/24 W-20-128_11152 65-70	MW-20-129 02/12/24 MW-20-129 64-69	MW-20-129 05/15/24 MW-20-129 64-69	MW-20-129 11/14/24 W-20-129_11142 64-69	MW-20-130 11/12/24 W-20-130_11122 -	MW-20-131 02/13/24 MW-20-131 5-10	MW-20-131 05/22/24 MW-20-131 5-10	MW-20-131 08/19/24 W-20-131_08192 5-10	MW-20-131 11/19/24 W-20-131_11192 5-10	MW-20-132 02/13/24 MW-20-132 6-11	MW-20-132 05/23/24 MW-20-132 6-11	MW-20-132 08/19/24 W-20-132_08192 6-11
Field Parameters																									
pH	6.5 to 8.5	6.5 to 9.0	s.u.	6.55	6.59	10.74	6.96	7.21	6.89	6.7	6.54	6.56	6.99	7.02	7.01	7	6.96	6.49	7.07	6.99	7.01	7.09	7.14	7.03	7.1
Conductivity	- -	- -	mS/cm	2.92	2.627	0.691	3.089	2.801	2.724	2.665	3.498	2.412	3.45	2.362	1.594	1.299	1.183	1.203	3.879	4.639	5.15	6.397	2.747	2.887	3.91
Turbidity	- -	- -	NTU	31.36	7.24	110	34	29.36	55	5.48	22.06	3.13	35.96	16.48	46.85	66.31	7.72	37.98	2.43	95.91	1.98	3.24	3.02	60.14	1.43
Dissolved oxygen (DO)	- -	- -	mg/L	0.37	0.37	1.34	2.4	7.78	1.71	0	0.35	0.26	0.72	1.31	1.09	2.91	0.28	0.42	74.3	-0.26	1.03	0.76	0.07	-0.23	5.01
Temperature	- -	- -	Deg C	15.5	13.9	23.6	12.9	13.9	12.4	12.1	14.4	10.8	16.9	11.8	9.8	21.5	13.2	9.8	7.5	16.5	20.2	16.1	8.2	13.3	17.4
Oxidation reduction potential (ORP)	- -	- -	millivolts	-47	-46.6	32.8	183.5	113.8	51.8	34	-13.8	44.4	83.5	128.9	-92	-22.5	-45.5	-8.1	74.3	22.7	-24.7	65.4	-16.8	-71	-106.6
Volatile Organics (via EPA Method SW5030C/8260C)																									
1,1-Dichloroethane	880	740	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	NA	< 1 [< 1]	NA	< 1
1,1-Dichloroethene	7.0	130	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	NA	< 1 [< 1]	NA	< 1
1,1,1-Trichloroethane	200	89	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	NA	< 1 [< 1]	NA	< 1
1,1,1,2-Tetrachloroethane	77	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	NA	< 1 [< 1]	NA	< 1
1,1,2-Trichloroethane	5.0	330	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	NA	< 1 [< 1]	NA	< 1
1,1,2,2-Tetrachloroethane	8.5	78	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	NA	< 1 [< 1]	NA	< 1
1,2-Dibromo-3-chloropropane (DBCP)	0.2	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5 [< 5]	NA	< 5 [< 5]	NA	< 5
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	NA	< 1 [< 1]	NA	< 1
1,2-Dichlorobenzene	600	13	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	NA	< 1 [< 1]	NA	< 1
1,2-Dichloroethane	5.0	360	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	NA	< 1 [< 1]	NA	< 1
1,2-Dichloropropane	5.0	230	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	NA	< 1 [< 1]	NA	< 1
1,2,3-Trichlorobenzene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5 [< 5]	NA	< 5 [< 5]	NA	< 5
1,2,3-Trichloropropane	42	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	NA	< 1 [< 1]	NA	< 1
1,2,3-Trimethylbenzene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	NA	< 1 [< 1]	NA	< 1
1,2,4-Trichlorobenzene	70	99	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5 [< 5]	NA	< 5 [< 5]	NA	< 5
1,2,4-Trimethylbenzene	63	17	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	NA	< 1 [< 1]	NA	< 1
1,3-Dichlorobenzene	6.6	28	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	NA	< 1 [< 1]	NA	< 1
1,3,5-Trimethylbenzene	72	45	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	NA	< 1 [< 1]	NA	< 1
1,4-Dichlorobenzene	75	17	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	NA	< 1 [< 1]	NA	< 1
1,4-Dioxane	7.2	280	µg/L	**186**	**171**	**0.20***	**58**	**7**	**27**	**156**	**171**	**174 [172]**	**2 [2]**	**3**	**64**	**67**	**77**	**170**	NA	NA	NA	NA	NA	NA	NA
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 25	NA	< 25 [< 25]	NA	< 25 [< 25]	NA	< 25
2-Hexanone	1,000	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 50	NA	< 50 [< 50]	NA	< 50 [< 50]	NA	< 50
2-Methylnaphthalene	260	19	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5 [< 5]	NA	< 5 [< 5]	NA	< 5
2-Phenylbutane (sec-Butylbenzene)	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	NA	< 1 [< 1]	NA	< 1
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 50	NA	< 50 [< 50]	NA	< 50 [< 50]	NA	< 50
Acetone	730	1,700	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 50	NA	< 50 [< 50]	NA	< 50 [< 50]	NA	< 50
Acrylonitrile	2.6	2.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 2	NA	< 2 [< 2]	NA	< 2 [< 2]	NA	< 2
Benzene	5.0	200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	NA	< 1 [< 1]	NA	< 1
Bromobenzene	18	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	NA	< 1 [< 1]	NA	< 1
Bromodichloromethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	NA	< 1 [< 1]	NA	< 1
Bromoform	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	NA	< 1 [< 1]	NA	< 1
Bromomethane (Methyl bromide)	10	5.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5 [< 5]	NA	< 5 [< 5]	NA	< 5
Carbon disulfide	800	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5 [< 5]	NA	< 5 [< 5]	NA	< 5
Carbon tetrachloride	5.0	38	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	NA	< 1 [< 1]	NA	< 1
Chlorobenzene	100	25	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	NA	< 1 [< 1]	NA	< 1
Chlorobromomethane	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	NA	< 1 [< 1]	NA	< 1
Chloroethane	430	1,100	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5 [< 5]	NA	< 5 [< 5]	NA	< 5
Chloroform (Trichloromethane)	80	350	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	NA	< 1 [< 1]	NA	< 1
Chloromethane (Methyl chloride)	260	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5 [< 5]	NA	< 5 [< 5]	NA	< 5
cis-1,2-Dichloroethene	70	620	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1**	NA	**3 [3]**	NA	**4 [5]**	NA	**7**
cis-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	NA	< 1 [< 1]	NA	< 1
Cymene (p-Isopropyltoluene)	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5 [< 5]	NA	< 5 [< 5]	NA	< 5
Dibromochloromethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5 [< 5]	NA	< 5 [< 5]	NA	< 5
Dibromomethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5 [< 5]	NA	< 5 [< 5]	NA	< 5
Dichlorodifluoromethane (CFC-12)	1,700	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5 [< 5]	NA	< 5 [< 5]	NA	< 5
Ethyl ether	10	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 10	NA	< 10 [< 10]	NA	< 10 [< 10]	NA	< 10
Ethylbenzene	74	18	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	NA	< 1 [< 1]	NA	< 1
Hexachloroethane	7.3	6.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5 [< 5]	NA	< 5 [< 5]	NA	< 5
Iodomethane	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	NA	< 1 [< 1]	NA	< 1
Isopropyl benzene	800	28	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5 [< 5]	NA	< 5 [< 5]	NA	< 5
Methyl tert butyl ether (MTBE)	40	7,100	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5 [< 5]	NA	< 5 [< 5]	NA	< 5
Methylene chloride	5.0	1,500	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5 [< 5]	NA	< 5 [< 5]	NA	< 5
Naphthalene	520	11	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5 [< 5]	NA	< 5 [< 5]	NA	< 5
N-Butylbenzene	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	NA	< 1 [< 1]	NA	< 1
N-Propylbenzene	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	NA	< 1 [< 1]	NA	< 1
Styrene	100	80	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	NA	< 1 [< 1]	NA	< 1
tert-Butylbenzene	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	NA	< 1 [< 1]	NA	< 1
Tetrachloroethene	5.0	60	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	NA	< 1 [< 1]	NA	< 1
Tetrahydrofuran	95	11,000	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 90	NA	< 90 [< 90]	NA	< 90 [< 90]	NA	< 90
Toluene	790	270	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	NA	< 1 [< 1]	NA	< 1
trans-1,2-Dichloroethene	100	1,500	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	NA	< 1 [< 1]	NA	< 1
trans-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	NA	< 1 [< 1]	NA	< 1
trans-1,4-Dichloro-2-butene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	NA	< 1 [< 1]	NA	< 1
Trichloroethene	5.0	200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	NA	< 1 [< 1]	NA	< 1
Trichlorofluoromethane (CFC-11)	2,600	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	NA	< 1 [< 1]	NA	< 1
Vinyl chloride	2.0	13	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**2**	NA	**2 [2]**	NA	**1 [1]**	NA	**2**
m&p-Xylene	280	49	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 2	NA	< 2 [< 2]	NA	< 2 [< 2]	NA	< 2
o-Xylene	280	49	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	NA	< 1 [< 1]	NA	< 1
Xylenes (total)	280	49	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 2	NA	< 2 [< 2]	NA	< 2 [< 2]	NA	< 2

See notes on last page.

Table 2
Summary of Groundwater Analytical Results - 2024
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name: Sample Depth (ft. bgs):	Part 201 Residential Drinking Water	Part 201 Groundwater Surface Water Interface	Units	MW-19-124 05/14/24 MW-19-124 65-70	MW-19-124 11/15/24 W-19-124_11152 65-70	MW-19-125 05/20/24 MW-19-125 100-115	MW-20-126 02/12/24 MW-20-126 69-74	MW-20-126 04/10/24 MW-20-126 69-74	MW-20-126 11/13/24 W-20-126_11132 69-74	MW-20-127 02/12/24 MW-20-127 72-77	MW-20-127 05/15/24 MW-20-127 72-77	MW-20-127 11/14/24 W-20-127_11142 72-77	MW-20-128 05/15/24 MW-20-128 65-70	MW-20-128 11/15/24 W-20-128_11152 65-70	MW-20-129 02/12/24 MW-20-129 64-69	MW-20-129 05/15/24 MW-20-129 64-69	MW-20-129 11/14/24 W-20-129_11142 64-69	MW-20-130 11/12/24 W-20-130_11122 -	MW-20-131 02/13/24 MW-20-131 5-10	MW-20-131 05/22/24 MW-20-131 5-10	MW-20-131 08/19/24 W-20-131_08192 5-10	MW-20-131 11/19/24 W-20-131_11192 5-10	MW-20-132 02/13/24 MW-20-132 6-11	MW-20-132 05/23/24 MW-20-132 6-11	MW-20-132 08/19/24 W-20-132_08192 6-11
Semi-Volatile Organics (via EPA Method SW5030C/8270D)																									
1,2-Dichlorobenzene	600	13	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Diphenylhydrazine	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	70	99	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	6.6	28	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	75	17	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	73	11	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	370	380	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	7.7	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	730	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	120	5.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	1,800	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorophenol	45	18	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	260	19	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitroaniline	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	20	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3&4-Methylphenol	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	1.1	0.3	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	20	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Bromophenyl phenyl ether	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	150	7.4	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloroaniline	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl phenyl ether	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrophenol	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	1,300	38	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	52	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	43	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	2.1	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	5.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1.5	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	1.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	1.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethoxy)methane	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl)ether	2.0	1.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate (DEHP)	6.0	14	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butyl benzylphthalate (BBP)	1,200	67	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	1.6	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	2.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	- -	4.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	5,500	110	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	73,000	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylphthalate (DBP)	880	9.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate (DnOP)	130	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	210	1.6	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	880	12	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	1.0	0.2	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	15	0.053	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	50	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	7.3	6.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	2.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isophorone	770	1,300	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	520	11	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene	3.4	180	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodi-n-propylamine	5.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	270	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	1.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	52	2.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	4,400	450	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	140	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 2
Summary of Groundwater Analytical Results - 2024
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name: Sample Depth (ft. bgs):	Part 201 Residential Drinking Water	Part 201 Groundwater Surface Water Interface	Units	MW-19-124 05/14/24 MW-19-124 65-70	MW-19-124 11/15/24 W-19-124_11152 65-70	MW-19-125 05/20/24 MW-19-125 100-115	MW-20-126 02/12/24 MW-20-126 69-74	MW-20-126 04/10/24 MW-20-126 69-74	MW-20-126 11/13/24 W-20-126_11132 69-74	MW-20-127 02/12/24 MW-20-127 72-77	MW-20-127 05/15/24 MW-20-127 72-77	MW-20-127 11/14/24 W-20-127_11142 72-77	MW-20-128 05/15/24 MW-20-128 65-70	MW-20-128 11/15/24 W-20-128_11152 65-70	MW-20-129 02/12/24 MW-20-129 64-69	MW-20-129 05/15/24 MW-20-129 64-69	MW-20-129 11/14/24 W-20-129_11142 64-69	MW-20-130 11/12/24 W-20-130_11122 -	MW-20-131 02/13/24 MW-20-131 5-10	MW-20-131 05/22/24 MW-20-131 5-10	MW-20-131 08/19/24 W-20-131_08192 5-10	MW-20-131 11/19/24 W-20-131_11192 5-10	MW-20-132 02/13/24 MW-20-132 6-11	MW-20-132 05/23/24 MW-20-132 6-11	MW-20-132 08/19/24 W-20-132_08192 6-11
Per- and Polyfluoroalkyl Substances (PFAS) (via EPA Method 537 Modified)																									
11Cl-PF3OUdS (F-53B Minor)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 40	NA	< 7.1	NA	< 7.4 H	NA	< 7.1	NA
4:2 FTS	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 40	NA	< 7.1 Q	NA	< 7.4 HQ	NA	< 7.1 Q	NA
6:2 FTS	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 40	NA	< 7.1 Q	NA	< 7.4 HQ	NA	< 7.1 Q	NA
8:2 FTS	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 40	NA	< 7.1	NA	< 7.4 HQ	NA	< 7.1	NA
9Cl-PF3ONS (F-53B Major)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 40	NA	< 7.1	NA	< 7.4 H	NA	< 7.1	NA
ADONA	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 40	NA	< 7.1	NA	< 7.4 H	NA	< 7.1	NA
Hexafluoropropylene oxide dimer acid (HFPO-DA) (GenX)	370	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 40	NA	< 7.1	NA	< 7.4 H	NA	< 7.1	NA
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 40	NA	< 7.1	NA	< 7.4 H	NA	< 7.1	NA
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 40	NA	< 7.1	NA	< 7.4 H	NA	< 7.1	NA
Perfluorobutanesulfonic acid (PFBS)	420	670,000	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**41**	NA	< 3.6	NA	**5.4 H**	NA	< 3.5	NA
Perfluorobutanoic acid (PFBA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**35**	NA	**18**	NA	**22 H**	NA	**14**	NA
Perfluorodecanesulfonic acid (PFDS)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 20	NA	< 3.6	NA	< 3.7 H	NA	< 3.5	NA
Perfluorodecanoic acid (PFDA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 20	NA	< 3.6	NA	**0.54 HJ**	NA	**2.1 J**	NA
Perfluorododecanoic acid (PFDoA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 20	NA	< 3.6	NA	< 3.7 H	NA	< 3.5	NA
Perfluoroheptanesulfonic Acid (PFHpS)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 20	NA	< 3.6	NA	< 3.7 H	NA	< 3.5	NA
Perfluoroheptanoic acid (PFHpA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**24**	NA	**20**	NA	**21 H**	NA	**17**	NA
Perfluorohexanesulfonic acid (PFHxS)	51	210	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**12 J**	NA	**2.4 J**	NA	**1.8 HJ**	NA	**2.1 J**	NA
Perfluorohexanoic acid (PFHxA)	400,000	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**82**	NA	**25**	NA	**24 H**	NA	**16**	NA
Perfluorononanesulfonic acid (PFNS)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 20	NA	< 3.6	NA	< 3.7 H	NA	< 3.5	NA
Perfluorononanoic acid (PFNA)	6.0	30	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 20	NA	**1.1 J**	NA	**3.0 HJ**	NA	**4.8**	NA
Perfluorooctane Sulfonamide (PFOSA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 20	NA	< 3.6	NA	< 3.7 H	NA	< 3.5	NA
Perfluorooctane sulfonic acid (PFOS)	16	12	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 20	NA	**2.9 J**	NA	**8.6 H**	NA	**11**	NA
Perfluorooctanoic acid (PFOA)	8.0	170	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**9.7 J**	NA	**31**	NA	**32 H**	NA	**24**	NA
Perfluoropentanesulfonic acid (PFPeS)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**11 J**	NA	< 3.6	NA	< 3.7 H	NA	< 3.5	NA
Perfluoropentanoic acid (PFPeA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**52**	NA	**29**	NA	**28 H**	NA	**20**	NA
Perfluorotetradecanoic acid (PFTeA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 20	NA	< 3.6	NA	< 3.7 H	NA	< 3.5	NA
Perfluorotridecanoic Acid (PFTriA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 20	NA	< 3.6	NA	< 3.7 H	NA	< 3.5	NA
Perfluoroundecanoic acid (PFUnA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 20	NA	< 3.6	NA	< 3.7 H	NA	< 3.5	NA
Metals (EPA Method 200.8, Standard Methods 3500-Cr)																									
Arsenic	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic (dissolved)	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium III (trivalent)	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium III (trivalent) (dissolved)	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium VI (hexavalent)	0.1	0.011	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1.0	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper (dissolved)	1.0	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead (dissolved)	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel (dissolved)	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium (dissolved)	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See notes on last page.

Table 2
Summary of Groundwater Analytical Results - 2024
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name: Sample Depth (ft. bgs):	Part 201 Residential Drinking Water	Part 201 Groundwater Surface Water Interface	Units	MW-20-132 11/19/24 MW-20-132_11192 6-11	MW-21-133 05/22/24 MW-21-133 10-15	MW-21-133 11/18/24 MW-21-133_11182 10-15	MW-21-134 05/22/24 MW-21-134 11-16	MW-21-134 11/18/24 MW-21-134_11182 11-16	MW-21-135 05/22/24 MW-21-135 22-27	MW-21-136 05/22/24 MW-21-136 9-14	MW-21-137 05/23/24 MW-21-137 7-12	MW-21-138 05/23/24 MW-21-138 24-29	MW-21-139 05/16/24 MW-21-139 7-12	MW-21-139 11/12/24 MW-21-139_11122 7-12	MW-21-140 05/16/24 MW-21-140 67-72	MW-21-140 11/12/24 MW-21-140_11122 67-72	MW-21-141 05/22/24 MW-21-141 72-77	MW-21-141 11/15/24 MW-21-141_11152 72-77	MW-21-142 05/15/24 MW-21-142 71.5-76.5	MW-21-142 11/13/24 MW-21-142_11132 71.5-76.5	MW-22-143 02/12/24 MW-22-143 26-31	MW-22-143 05/22/24 MW-22-143 26-31	MW-22-143 08/20/24 MW-22-143_08202 26-31	MW-22-143 11/15/24 MW-22-143_11152 26-31	MW-22-144 02/14/24 MW-22-144 19.5-24.5
Field Parameters																										
pH	6.5 to 8.5	6.5 to 9.0	s.u.	7.14	6.78	6.96	6.9	6.97	7.14	7.18	6.68	6.85	7.55	7.71	6.92	6.98	6.81	6.75	6.64	6.79	7.04	7	7.06	6.99	7.12
Conductivity	- -	- -	mS/cm	4.205	1.016	0.975	0.866	0.902	0.854	0.898	1.153	1.641	1.167	0.976	0.892	0.65	0.933	1.212	2.107	1.923	2.43	2.869	2.66	2.861	1.175
Turbidity	- -	- -	NTU	6.42	1.89	3.81	4.68	6.22	3.4	3.71	3.11	2.45	3.83	2	77.79	15	9.32	52.67	320.75	134	23.96	8.09	8.21	4.88	9.06
Dissolved oxygen (DO)	- -	- -	mg/L	0.14	-0.03	0.63	0.67	0.93	0.38	0.52	2.33	0.76	0.25	0.41	0.38	1.4	0.29	1.48	-0.24	0	0.21	0.44	0.24	0.19	0.46
Temperature	- -	- -	Deg C	15.8	14.3	14.8	14.2	15.2	16.3	14.9	12.9	14.1	14.3	13	16.5	12.2	19.3	11.4	13.4	12.7	12.3	16.9	14.8	13.8	10.2
Oxidation reduction potential (ORP)	- -	- -	millivolts	-52.2	172.3	84.9	229.2	112.6	31.1	12.6	209.2	34	-87	-115.1	-38.1	-3.8	-88	19.7	1	-74.9	-49.7	0.1	-60.7	-95.2	-93.7
Volatile Organics (via EPA Method SW5030C/8260C)																										
1,1-Dichloroethane	880	740	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	7.0	130	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	200	89	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1,2-Tetrachloroethane	77	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	5.0	330	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	8.5	78	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane (DBCP)	0.2	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	600	13	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	5.0	360	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	5.0	230	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichlorobenzene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	42	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trimethylbenzene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	70	99	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	63	17	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	6.6	28	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	72	45	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	75	17	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	7.2	280	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	**2**	< 1	< 1	< 1	< 1 [< 1]	**112**	**95**	NA	NA	NA	NA	NA
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	1,000	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	260	19	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Phenylbutane (sec-Butylbenzene)	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	730	1,700	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrylonitrile	2.6	2.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	5.0	200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromobenzene	18	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane (Methyl bromide)	10	5.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	800	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon tetrachloride	5.0	38	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	100	25	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobromomethane	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	430	1,100	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform (Trichloromethane)	80	350	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane (Methyl chloride)	260	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	70	620	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cymene (p-Isopropyltoluene)	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromomethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane (CFC-12)	1,700	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl ether	10	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	74	18	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	7.3	6.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iodomethane	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropyl benzene	800	28	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert butyl ether (MTBE)	40	7,100	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	5.0	1,500	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	520	11	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Butylbenzene	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Propylbenzene	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	100	80	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	5.0	60	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrahydrofuran	95	11,000	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	790	270	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	100	1,500	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,4-Dichloro-2-butene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	5.0	200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane (CFC-11)	2,600	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	2.0	13	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m&p-Xylene	280	49	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	280	49	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	280	49	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See notes on last page.

Table 2
Summary of Groundwater Analytical Results - 2024
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name: Sample Depth (ft. bgs):	Part 201 Residential Drinking Water	Part 201 Groundwater Surface Water Interface	Units	MW-20-132 11/19/24 MW-20-132_11192 6-11	MW-21-133 05/22/24 MW-21-133 10-15	MW-21-133 11/18/24 MW-21-133_11182 10-15	MW-21-134 05/22/24 MW-21-134 11-16	MW-21-134 11/18/24 MW-21-134_11182 11-16	MW-21-135 05/22/24 MW-21-135 22-27	MW-21-136 05/22/24 MW-21-136 9-14	MW-21-137 05/23/24 MW-21-137 7-12	MW-21-138 05/23/24 MW-21-138 24-29	MW-21-139 05/16/24 MW-21-139 7-12	MW-21-139 11/12/24 MW-21-139_11122 7-12	MW-21-140 05/16/24 MW-21-140 67-72	MW-21-140 11/12/24 MW-21-140_11122 67-72	MW-21-141 05/22/24 MW-21-141 72-77	MW-21-141 11/15/24 MW-21-141_11152 72-77	MW-21-142 05/15/24 MW-21-142 71.5-76.5	MW-21-142 11/13/24 MW-21-142_11132 71.5-76.5	MW-22-143 02/12/24 MW-22-143 26-31	MW-22-143 05/22/24 MW-22-143 26-31	MW-22-143 08/20/24 MW-22-143_08202 26-31	MW-22-143 11/15/24 MW-22-143_11152 26-31	MW-22-144 02/14/24 MW-22-144 19.5-24.5
Semi-Volatile Organics (via EPA Method SW5030C/8270D)																									
1,2-Dichlorobenzene	600	13	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Diphenylhydrazine	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	70	99	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	6.6	28	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	75	17	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	73	11	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	370	380	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	7.7	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	730	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	120	5.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	1,800	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorophenol	45	18	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	260	19	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitroaniline	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	20	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3&4-Methylphenol	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	1.1	0.3	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	20	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Bromophenyl phenyl ether	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	150	7.4	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloroaniline	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl phenyl ether	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrophenol	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	1,300	38	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	52	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	43	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	2.1	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	5.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1.5	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	1.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	1.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethoxy)methane	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl)ether	2.0	1.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate (DEHP)	6.0	14	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butyl benzylphthalate (BBP)	1,200	67	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	1.6	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	2.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	- -	4.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	5,500	110	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	73,000	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylphthalate (DBP)	880	9.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate (DnOP)	130	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	210	1.6	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	880	12	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	1.0	0.2	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	15	0.053	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	50	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	7.3	6.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	2.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isophorone	770	1,300	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	520	11	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene	3.4	180	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodi-n-propylamine	5.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	270	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	1.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	52	2.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	4,400	450	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	140	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 2
Summary of Groundwater Analytical Results - 2024
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name: Sample Depth (ft. bgs):	Part 201 Residential Drinking Water	Part 201 Groundwater Surface Water Interface	Units	MW-20-132 11/19/24 MW-20-132_11192 6-11	MW-21-133 05/22/24 MW-21-133 10-15	MW-21-133 11/18/24 MW-21-133_11182 10-15	MW-21-134 05/22/24 MW-21-134 11-16	MW-21-134 11/18/24 MW-21-134_11182 11-16	MW-21-135 05/22/24 MW-21-135 22-27	MW-21-136 05/22/24 MW-21-136 9-14	MW-21-137 05/23/24 MW-21-137 7-12	MW-21-138 05/23/24 MW-21-138 24-29	MW-21-139 05/16/24 MW-21-139 7-12	MW-21-139 11/12/24 MW-21-139_11122 7-12	MW-21-140 05/16/24 MW-21-140 67-72	MW-21-140 11/12/24 MW-21-140_11122 67-72	MW-21-141 05/22/24 MW-21-141 72-77	MW-21-141 11/15/24 MW-21-141_11152 72-77	MW-21-142 05/15/24 MW-21-142 71.5-76.5	MW-21-142 11/13/24 MW-21-142_11132 71.5-76.5	MW-22-143 02/12/24 MW-22-143 26-31	MW-22-143 05/22/24 MW-22-143 26-31	MW-22-143 08/20/24 MW-22-143_08202 26-31	MW-22-143 11/15/24 MW-22-143_11152 26-31	MW-22-144 02/14/24 MW-22-144 19.5-24.5
Per- and Polyfluoroalkyl Substances (PFAS) (via EPA Method 537 Modified)																									
11Cl-PF3OUdS (F-53B Minor)	- -	- -	ng/L	< 7.0	< 7.6	< 6.9 [< 6.8]	< 7.8	< 7.1	< 8.0	< 7.4	< 7.9	< 7.8	< 7.6	< 7.7 [< 7.5]	NA	NA	NA	NA	NA	NA	< 6.9 [< 6.7]	< 7.2	< 40	< 40	< 6.9
4:2 FTS	- -	- -	ng/L	< 7.0 Q	< 7.6 Q	< 6.9 Q [< 6.8 Q]	< 7.8 Q	< 7.1	< 8.0 Q	< 7.4	< 7.9	< 7.8	< 7.6 Q	< 7.7 Q [< 7.5]	NA	NA	NA	NA	NA	NA	**< 6.9 Q [2.1 JQ]**	< 7.2	< 40	< 40	< 6.9 UQ
6:2 FTS	- -	- -	ng/L	< 7.0 Q	< 7.6 Q	< 6.9 [< 6.8]	< 7.8	< 7.1	< 8.0 Q	< 7.4	< 7.9	< 7.8	**37 Q**	**61 [65]**	NA	NA	NA	NA	NA	NA	**< 6.9 [4.0 J]**	< 7.2	< 40	< 40	< 6.9
8:2 FTS	- -	- -	ng/L	< 7.0	< 7.6	< 6.9 [< 6.8]	< 7.8	< 7.1	< 8.0	< 7.4	< 7.9	< 7.8	**42**	**47 [57]**	NA	NA	NA	NA	NA	NA	< 6.9 [< 6.7]	< 7.2	< 40	< 40	< 6.9
9Cl-PF3ONS (F-53B Major)	- -	- -	ng/L	< 7.0	< 7.6	< 6.9 [< 6.8]	< 7.8	< 7.1	< 8.0	< 7.4	< 7.9	< 7.8	< 7.6	< 7.7 [< 7.5]	NA	NA	NA	NA	NA	NA	< 6.9 [< 6.7]	< 7.2	< 40	< 40	< 6.9
ADONA	- -	- -	ng/L	< 7.0	< 7.6	< 6.9 [< 6.8]	< 7.8	< 7.1	< 8.0	< 7.4	< 7.9	< 7.8	< 7.6	< 7.7 [< 7.5]	NA	NA	NA	NA	NA	NA	< 6.9 [< 6.7]	< 7.2	< 40	< 40	< 6.9
Hexafluoropropylene oxide dimer acid (HFPO-DA) (GenX)	370	- -	ng/L	< 7.0	< 7.6	< 6.9 [< 6.8]	< 7.8	< 7.1	< 8.0	< 7.4	< 7.9	< 7.8	< 7.6	< 7.7 [< 7.5]	NA	NA	NA	NA	NA	NA	< 6.9 [< 6.7]	< 7.2	< 40	< 40	< 6.9
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	- -	- -	ng/L	< 7.0	< 7.6	< 6.9 [< 6.8]	< 7.8	< 7.1	< 8.0	< 7.4	< 7.9	< 7.8	< 7.6	< 7.7 [< 7.5]	NA	NA	NA	NA	NA	NA	< 6.9 [< 6.7]	< 7.2	< 40	< 40	< 6.9
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA	- -	- -	ng/L	< 7.0	< 7.6	< 6.9 [< 6.8]	< 7.8	< 7.1	< 8.0	< 7.4	< 7.9	< 7.8	< 7.6	< 7.7 [< 7.5]	NA	NA	NA	NA	NA	NA	< 6.9 [< 6.7]	< 7.2	< 40	< 40	< 6.9
Perfluorobutanesulfonic acid (PFBS)	420	670,000	ng/L	< 3.5	**2.0 J**	**3.0 J [3.2 J]**	**2.6 J**	**3.1 J**	**1.7 J**	**0.59 J**	< 3.9	< 3.9	**14**	**20 [25]**	NA	NA	NA	NA	NA	NA	**1.1 J [1.7 J]**	**1.5 J**	< 20	< 20	**2.5 J**
Perfluorobutanoic acid (PFBA)	- -	- -	ng/L	**19**	**17**	**32 [30]**	**11**	**22**	**9.3**	**1.2 J**	< 3.9	< 3.9	**36**	**59 [63]**	NA	NA	NA	NA	NA	NA	**11 [13]**	**12**	**10 J**	**10 J**	**7.1**
Perfluorodecanesulfonic acid (PFDS)	- -	- -	ng/L	< 3.5	< 3.8	< 3.4 [< 3.4]	< 3.9	< 3.5	< 4.0	< 3.7	< 3.9	< 3.9	< 3.8	< 3.8 [< 3.8]	NA	NA	NA	NA	NA	NA	< 3.5 [< 3.4]	< 3.6	< 20	< 20	< 3.4
Perfluorodecanoic acid (PFDA)	- -	- -	ng/L	**3.8**	< 3.8	< 3.4 [< 3.4]	< 3.9	< 3.5	< 4.0	< 3.7	< 3.9	< 3.9	**5.3**	**7.3 [7.1]**	NA	NA	NA	NA	NA	NA	< 3.5 [< 3.4]	< 3.6	< 20	< 20	< 3.4
Perfluorododecanoic acid (PFDoA)	- -	- -	ng/L	< 3.5	< 3.8	< 3.4 [< 3.4]	< 3.9	< 3.5	< 4.0	< 3.7	< 3.9	< 3.9	< 3.8	< 3.8 [< 3.8]	NA	NA	NA	NA	NA	NA	< 3.5 [< 3.4]	< 3.6	< 20	< 20	< 3.4
Perfluoroheptanesulfonic Acid (PFHpS)	- -	- -	ng/L	**0.57 J**	< 3.8	< 3.4 [< 3.4]	< 3.9	< 3.5	< 4.0	< 3.7	< 3.9	< 3.9	**31**	**47 [43]**	NA	NA	NA	NA	NA	NA	< 3.5 [< 3.4]	< 3.6	< 20	< 20	< 3.4
Perfluoroheptanoic acid (PFHpA)	- -	- -	ng/L	**25**	**21**	**40 [43]**	**16**	**31**	**37**	< 3.7	< 3.9	< 3.9	**55**	**83 [78]**	NA	NA	NA	NA	NA	NA	**5 [5.3]**	**7.4**	**8.5 J**	**7.3 J**	**8**
Perfluorohexanesulfonic acid (PFHxS)	51	210	ng/L	**3.4 J**	**1.8 J**	**3.7 [3.3 J]**	**2.0 J**	**3.3 J**	**2.6 J**	< 3.7	< 3.9	< 3.9	**240**	**410 [400]**	NA	NA	NA	NA	NA	NA	**< 3.5 [1.1 J]**	**0.62 J**	< 20	< 20	**4.4**
Perfluorohexanoic acid (PFHxA)	400,000	- -	ng/L	**24**	**24**	**50 [51]**	**17**	**42**	**23**	< 3.7	< 3.9	< 3.9	**66**	**120 [130]**	NA	NA	NA	NA	NA	NA	**14 [16]**	**16**	**16 J**	**17 J**	**12**
Perfluorononanesulfonic acid (PFNS)	- -	- -	ng/L	< 3.5	< 3.8	< 3.4 [< 3.4]	< 3.9	< 3.5	< 4.0	< 3.7	< 3.9	< 3.9	< 3.8	< 3.8 **[0.85 J]**	NA	NA	NA	NA	NA	NA	< 3.5 [< 3.4]	< 3.6	< 20	< 20	< 3.4
Perfluorononanoic acid (PFNA)	6.0	30	ng/L	**8.4**	**2.3 J**	**2.4 J [2.5 J]**	**0.96 J**	**1.7 J**	**1.9 J**	< 3.7	< 3.9	< 3.9	**15**	**23 [23]**	NA	NA	NA	NA	NA	NA	< 3.5 [< 3.4]	< 3.6	< 20	< 20	< 3.4
Perfluorooctane Sulfonamide (PFOSA)	- -	- -	ng/L	< 3.5	< 3.8	< 3.4 [< 3.4]	< 3.9	< 3.5	< 4.0	< 3.7	< 3.9	< 3.9	**0.92 J**	< 3.8 **[1.0 J]**	NA	NA	NA	NA	NA	NA	< 3.5 [< 3.4]	< 3.6	< 20	< 20	< 3.4
Perfluorooctane sulfonic acid (PFOS)	16	12	ng/L	**19**	**4.8**	**5.5 [6.2]**	**4.4**	**6.2**	**2.0 J**	< 3.7	< 3.9	< 3.9	**1700**	**1900 [2100]**	NA	NA	NA	NA	NA	NA	< 3.5 [< 3.4]	< 3.6	< 20	< 20	**1.8 J**
Perfluorooctanoic acid (PFOA)	8.0	170	ng/L	**44**	**55**	**81 [83]**	**32**	**53**	**57**	< 3.7	< 3.9	< 3.9	**79**	**130 [140]**	NA	NA	NA	NA	NA	NA	**5.5 [5.6]**	**8.7**	**6.6 J**	**6.4 J**	**14**
Perfluoropentanesulfonic acid (PFPeS)	- -	- -	ng/L	< 3.5	**0.67 J**	< 3.4 [< 3.4]	**0.64 J**	< 3.5	**1.2 J**	< 3.7	< 3.9	< 3.9	**17**	**31 [38]**	NA	NA	NA	NA	NA	NA	< 3.5 [< 3.4]	< 3.6	< 20	< 20	**0.76 J**
Perfluoropentanoic acid (PFPeA)	- -	- -	ng/L	**28**	**16**	**37 [41]**	**14**	**38**	**16**	**0.56 J**	< 3.9	< 3.9	**71**	**100 [120]**	NA	NA	NA	NA	NA	NA	**12 [13]**	**11**	**11 J**	**10 J**	**12**
Perfluorotetradecanoic acid (PFTeA)	- -	- -	ng/L	< 3.5	< 3.8	< 3.4 [< 3.4]	< 3.9	< 3.5	< 4.0	< 3.7	< 3.9	< 3.9	< 3.8	< 3.8 [< 3.8]	NA	NA	NA	NA	NA	NA	< 3.5 [< 3.4]	< 3.6	< 20	< 20	< 3.4
Perfluorotridecanoic Acid (PFTriA)	- -	- -	ng/L	< 3.5	< 3.8	< 3.4 [< 3.4]	< 3.9	< 3.5	< 4.0	< 3.7	< 3.9	< 3.9	< 3.8	< 3.8 [< 3.8]	NA	NA	NA	NA	NA	NA	< 3.5 [< 3.4]	< 3.6	< 20	< 20	< 3.4
Perfluoroundecanoic acid (PFUnA)	- -	- -	ng/L	< 3.5	< 3.8	< 3.4 [< 3.4]	< 3.9	< 3.5	< 4.0	< 3.7	< 3.9	< 3.9	< 3.8	< 3.8 [< 3.8]	NA	NA	NA	NA	NA	NA	< 3.5 [< 3.4]	< 3.6	< 20	< 20	< 3.4
Metals (EPA Method 200.8, Standard Methods 3500-Cr)																									
Arsenic	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic (dissolved)	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium III (trivalent)	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium III (trivalent) (dissolved)	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium VI (hexavalent)	0.1	0.011	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1.0	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper (dissolved)	1.0	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead (dissolved)	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel (dissolved)	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium (dissolved)	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See notes on last page.

Table 2
Summary of Groundwater Analytical Results - 2024
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID:	Part 201 Residential Drinking Water	Part 201 Groundwater Surface Water Interface	Units	MW-22-144	MW-22-144	MW-22-144	MW-22-145	MW-22-145	MW-22-145	MW-22-145	MW-22-146	MW-22-146	MW-22-146	MW-22-146	MW-22-147	MW-22-147	MW-22-147	MW-22-147	MW-22-148	MW-22-148	MW-22-148	MW-22-148	MW-22-149	MW-22-149	MW-22-149
Date Collected:				05/22/24	08/20/24	11/13/24	02/12/24	05/22/24	08/20/24	11/13/24	02/14/24	05/22/24	08/20/24	11/15/24	02/14/24	05/23/24	08/21/24	11/14/24	02/14/24	05/23/24	08/21/24	11/14/24	02/14/24	05/23/24	08/21/24
Sample Name:				MW-22-144	W-22-144_08202	W-22-144_11132	MW-22-145	MW-22-145	W-22-145_08202	W-22-145_11132	MW-22-146	MW-22-146	W-22-146_08202	W-22-146_11152	MW-22-147	MW-22-147	W-22-147_08212	W-22-147_11142	MW-22-148	MW-22-148	W-22-148_08212	W-22-148_11142	MW-22-149	MW-22-149	W-22-149_08212
Sample Depth (ft. bgs):				19.5-24.5	19.5-24.5	19.5-24.5	10.5-15.5	10.5-15.5	10.5-15.5	10.5-15.5	5.5-10.5	5.5-10.5	5.5-10.5	5.5-10.5	7.5-12.5	7.5-12.5	7.5-12.5	7.5-12.5	24.5-29.5	24.5-29.5	24.5-29.5	24.5-29.5	5.5-10.5	5.5-10.5	5.5-10.5
Field Parameters																									
pH	6.5 to 8.5	6.5 to 9.0	s.u.	7.14	7.01	7.03	7.04	7.06	6.91	7.04	7.41	7.27	7.08	7.12	7.15	7.11	7.1	7.08	7.21	6.94	7.12	7.07	7.3	7.35	7.22
Conductivity	- -	- -	mS/cm	1.212	1.18	1.225	0.669	0.917	0.96	1.267	0.866	0.938	1.01	0.891	1.33	1.288	1.17	1.255	0.92	0.971	0.75	0.893	0.374	0.576	0.51
Turbidity	- -	- -	NTU	15.63	7.41	8.33	25.03	7.28	7.18	2.05	16.78	8.75	7.89	3.1	9.09	8.41	7.76	2.52	9.42	19.8	15.7	5.14	4.03	3.92	3.01
Dissolved oxygen (DO)	- -	- -	mg/L	0.53	0.18	0.14	1.77	2.33	0.71	0.42	7.93	3.58	3.12	4.07	4.34	4.39	3.59	3.45	1.06	1.68	1.62	1.24	7.86	6.9	6.74
Temperature	- -	- -	Deg C	15.3	16.4	15.5	9.6	17.1	18.1	15.3	7.3	12.9	17.4	14.5	8.2	13	17.3	15.5	10.2	15.3	15	11.7	8	14.4	18.6
Oxidation reduction potential (ORP)	- -	- -	millivolts	48.4	-13.2	64.5	103.6	115.3	-16.5	33.4	-50	111.3	-5.1	140.1	-55.9	160.8	101	109.5	-87.9	188.7	45.8	109.1	252.6	194.2	134.4
Volatile Organics (via EPA Method SW5030C/8260C)																									
1,1-Dichloroethane	880	740	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	7.0	130	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	200	89	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1,2-Tetrachloroethane	77	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	5.0	330	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	8.5	78	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane (DBCP)	0.2	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	600	13	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	5.0	360	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	5.0	230	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichlorobenzene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	42	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trimethylbenzene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	70	99	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	63	17	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	6.6	28	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	72	45	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	75	17	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	7.2	280	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	1,000	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	260	19	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Phenylbutane (sec-Butylbenzene)	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	730	1,700	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrylonitrile	2.6	2.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	5.0	200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromobenzene	18	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane (Methyl bromide)	10	5.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	800	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon tetrachloride	5.0	38	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	100	25	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobromomethane	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	430	1,100	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform (Trichloromethane)	80	350	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane (Methyl chloride)	260	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	70	620	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cymene (p-Isopropyltoluene)	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromomethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane (CFC-12)	1,700	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl ether	10	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	74	18	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	7.3	6.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iodomethane	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropyl benzene	800	28	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert butyl ether (MTBE)	40	7,100	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	5.0	1,500	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	520	11	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Butylbenzene	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Propylbenzene	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	100	80	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	5.0	60	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrahydrofuran	95	11,000	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	790	270	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	100	1,500	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,4-Dichloro-2-butene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	5.0	200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane (CFC-11)	2,600	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	2.0	13	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m&p-Xylene	280	49	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	280	49	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	280	49	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See notes on last page.

Table 2
Summary of Groundwater Analytical Results - 2024
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID:	Part 201 Residential Drinking Water	Part 201 Groundwater Surface Water Interface	Units	MW-22-144	MW-22-144	MW-22-144	MW-22-145	MW-22-145	MW-22-145	MW-22-145	MW-22-146	MW-22-146	MW-22-146	MW-22-146	MW-22-147	MW-22-147	MW-22-147	MW-22-147	MW-22-148	MW-22-148	MW-22-148	MW-22-148	MW-22-149	MW-22-149	MW-22-149
Date Collected:				05/22/24	08/20/24	11/13/24	02/12/24	05/22/24	08/20/24	11/13/24	02/14/24	05/22/24	08/20/24	11/15/24	02/14/24	05/23/24	08/21/24	11/14/24	02/14/24	05/23/24	08/21/24	11/14/24	02/14/24	05/23/24	08/21/24
Sample Name:				MW-22-144	W-22-144_08202	W-22-144_11132	MW-22-145	MW-22-145	W-22-145_08202	W-22-145_11132	MW-22-146	MW-22-146	W-22-146_08202	W-22-146_11152	MW-22-147	MW-22-147	W-22-147_08212	W-22-147_11142	MW-22-148	MW-22-148	W-22-148_08212	W-22-148_11142	MW-22-149	MW-22-149	W-22-149_08212
Sample Depth (ft. bgs):				19.5-24.5	19.5-24.5	19.5-24.5	10.5-15.5	10.5-15.5	10.5-15.5	10.5-15.5	5.5-10.5	5.5-10.5	5.5-10.5	5.5-10.5	7.5-12.5	7.5-12.5	7.5-12.5	7.5-12.5	24.5-29.5	24.5-29.5	24.5-29.5	24.5-29.5	5.5-10.5	5.5-10.5	5.5-10.5
Semi-Volatile Organics (via EPA Method SW5030C/8270D)																									
1,2-Dichlorobenzene	600	13	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Diphenylhydrazine	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	70	99	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	6.6	28	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	75	17	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	73	11	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	370	380	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	7.7	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	730	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	120	5.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	1,800	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorophenol	45	18	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	260	19	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitroaniline	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	20	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3&4-Methylphenol	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	1.1	0.3	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	20	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Bromophenyl phenyl ether	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	150	7.4	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloroaniline	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl phenyl ether	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrophenol	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	1,300	38	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	52	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	43	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	2.1	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	5.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1.5	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	1.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	1.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethoxy)methane	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl)ether	2.0	1.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate (DEHP)	6.0	14	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butyl benzylphthalate (BBP)	1,200	67	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	1.6	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	2.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	- -	4.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	5,500	110	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	73,000	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylphthalate (DBP)	880	9.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate (DnOP)	130	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	210	1.6	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	880	12	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	1.0	0.2	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	15	0.053	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	50	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	7.3	6.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	2.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isophorone	770	1,300	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	520	11	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene	3.4	180	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodi-n-propylamine	5.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	270	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	1.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	52	2.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	4,400	450	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	140	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 2
Summary of Groundwater Analytical Results - 2024
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name: Sample Depth (ft. bgs):	Part 201 Residential Drinking Water	Part 201 Groundwater Surface Water Interface	Units	MW-22-144 05/22/24 MW-22-144 19.5-24.5	MW-22-144 08/20/24 W-22-144_08202 19.5-24.5	MW-22-144 11/13/24 W-22-144_11132 19.5-24.5	MW-22-145 02/12/24 MW-22-145 10.5-15.5	MW-22-145 05/22/24 MW-22-145 10.5-15.5	MW-22-145 08/20/24 W-22-145_08202 10.5-15.5	MW-22-145 11/13/24 W-22-145_11132 10.5-15.5	MW-22-146 02/14/24 MW-22-146 5.5-10.5	MW-22-146 05/22/24 MW-22-146 5.5-10.5	MW-22-146 08/20/24 W-22-146_08202 5.5-10.5	MW-22-146 11/15/24 W-22-146_11152 5.5-10.5	MW-22-147 02/14/24 MW-22-147 7.5-12.5	MW-22-147 05/23/24 MW-22-147 7.5-12.5	MW-22-147 08/21/24 W-22-147_08212 7.5-12.5	MW-22-147 11/14/24 W-22-147_11142 7.5-12.5	MW-22-148 02/14/24 MW-22-148 24.5-29.5	MW-22-148 05/23/24 MW-22-148 24.5-29.5	MW-22-148 08/21/24 W-22-148_08212 24.5-29.5	MW-22-148 11/14/24 W-22-148_11142 24.5-29.5	MW-22-149 02/14/24 MW-22-149 5.5-10.5	MW-22-149 05/23/24 MW-22-149 5.5-10.5	MW-22-149 08/21/24 W-22-149_08212 5.5-10.5
Per- and Polyfluoroalkyl Substances (PFAS) (via EPA Method 537 Modified)																										
11Cl-PF3OUdS (F-53B Minor)	- -	- -	ng/L	< 6.6 [< 6.6]	< 6.8	< 7.7	< 6.8	< 7.2	< 6.7	< 7.9	< 7.4	< 6.7	< 6.9 [< 6.7]	< 7.8	< 7.1	< 6.8	< 6.3	< 7.7 [< 8.0]	< 6.8	< 7.1	< 40	< 7.9	< 6.9	< 6.8	< 6.3
4:2 FTS	- -	- -	ng/L	< 6.6 [< 6.6]	< 6.8	< 7.7	< 6.8	< 7.2	< 6.7	< 7.9	< 7.4 Q	< 6.7 Q	< 6.9 Q [< 6.7 Q]	< 7.8 Q	< 7.1 Q	< 6.8 Q	< 6.3 Q	< 7.7 Q [< 8.0 Q]	< 6.8	< 7.1	< 40	< 7.9	< 6.9	< 6.8	< 6.3
6:2 FTS	- -	- -	ng/L	< 6.6 [< 6.6]	< 6.8	< 7.7	< 6.8	< 7.2	< 6.7	< 7.9	< 7.4 Q	< 6.7 Q	< 6.9 [< 6.7]	< 7.8	< 7.1 Q	< 6.8	**1.6 J**	< 7.7 [< 8.0]	< 6.8	< 7.1	< 40	< 7.9	< 6.9	< 6.8	< 6.3
8:2 FTS	- -	- -	ng/L	< 6.6 [< 6.6]	< 6.8	< 7.7	< 6.8	< 7.2	< 6.7	< 7.9	< 7.4	< 6.7	< 6.9 [< 6.7]	< 7.8	< 7.1	< 6.8	< 6.3	< 7.7 [< 8.0]	< 6.8	< 7.1	< 40	< 7.9	< 6.9	< 6.8	< 6.3
9Cl-PF3ONS (F-53B Major)	- -	- -	ng/L	< 6.6 [< 6.6]	< 6.8	< 7.7	< 6.8	< 7.2	< 6.7	< 7.9	< 7.4	< 6.7	< 6.9 [< 6.7]	< 7.8	< 7.1	< 6.8	< 6.3	< 7.7 [< 8.0]	< 6.8	< 7.1	< 40	< 7.9	< 6.9	< 6.8	< 6.3
ADONA	- -	- -	ng/L	< 6.6 [< 6.6]	< 6.8	< 7.7	< 6.8	< 7.2	< 6.7	< 7.9	< 7.4	< 6.7	< 6.9 [< 6.7]	< 7.8	< 7.1	< 6.8	< 6.3	< 7.7 [< 8.0]	< 6.8	< 7.1	< 40	< 7.9	< 6.9	< 6.8	< 6.3
Hexafluoropropylene oxide dimer acid (HFPO-DA) (GenX)	370	- -	ng/L	< 6.6 [< 6.6]	< 6.8	< 7.7	< 6.8	< 7.2	< 6.7	< 7.9	< 7.4	< 6.7	< 6.9 [< 6.7]	< 7.8	< 7.1	< 6.8	< 6.3	< 7.7 [< 8.0]	< 6.8	< 7.1	< 40	< 7.9	< 6.9	< 6.8	< 6.3
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	- -	- -	ng/L	< 6.6 [< 6.6]	< 6.8	< 7.7	< 6.8	< 7.2	< 6.7	< 7.9	< 7.4	< 6.7	< 6.9 [< 6.7]	< 7.8	< 7.1	< 6.8	< 6.3	< 7.7 [< 8.0]	< 6.8	< 7.1	< 40	< 7.9	< 6.9	< 6.8	< 6.3
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA	- -	- -	ng/L	< 6.6 [< 6.6]	< 6.8	< 7.7	< 6.8	< 7.2	< 6.7	< 7.9	< 7.4	< 6.7	< 6.9 [< 6.7]	< 7.8	< 7.1	< 6.8	< 6.3	< 7.7 [< 8.0]	< 6.8	< 7.1	< 40	< 7.9	< 6.9	< 6.8	< 6.3
Perfluorobutanesulfonic acid (PFBS)	420	670,000	ng/L	**2.7 J [2.5 J]**	**2.9 J**	**3.2 J**	**3.4**	**3.9**	**4.9**	**2.5 J**	**4.3**	**5**	**3.2 J [3.1 J]**	**3.6 J**	**4.9**	**3.2 J**	**2.5 J**	**3.6 J [3.8 J]**	**2.1 J**	**2.0 J**	< 20	**2.2 J**	**0.95 J**	**0.87 J**	**1.2 J**
Perfluorobutanoic acid (PFBA)	- -	- -	ng/L	**7.7 [6.9]**	**5.5**	**5.6**	**10**	**7.6**	**8.8**	**8.7**	**8.7**	**10**	**9.3 [9.4]**	**7.0**	**7.4**	**5.4**	**6.3**	**6.6 [6.7]**	**0.63 J**	< 3.6	< 20	**1.8 J**	< 3.4	**0.65 J**	**0.71 J**
Perfluorodecanesulfonic acid (PFDS)	- -	- -	ng/L	< 3.3 [< 3.3]	< 3.4	< 3.8	< 3.4	< 3.6	< 3.3	< 3.9	< 3.7	< 3.4	< 3.4 [< 3.4]	< 3.9	< 3.6	< 3.4	< 3.2	< 3.8 [< 4.0]	< 3.4	< 3.6	< 20	< 4.0	< 3.4	< 3.4	< 3.2
Perfluorodecanoic acid (PFDA)	- -	- -	ng/L	< 3.3 [< 3.3]	< 3.4	< 3.8	< 3.4	< 3.6	< 3.3	< 3.9	< 3.7	< 3.4	< 3.4 [< 3.4]	< 3.9	< 3.6	< 3.4	< 3.2	< 3.8 [< 4.0]	< 3.4	< 3.6	< 20	< 4.0	< 3.4	< 3.4	< 3.2
Perfluorododecanoic acid (PFDoA)	- -	- -	ng/L	< 3.3 [< 3.3]	< 3.4	< 3.8	< 3.4	< 3.6	< 3.3	< 3.9	< 3.7	< 3.4	< 3.4 [< 3.4]	< 3.9	< 3.6	< 3.4	< 3.2	< 3.8 [< 4.0]	< 3.4	< 3.6	< 20	< 4.0	< 3.4	< 3.4	< 3.2
Perfluoroheptanesulfonic Acid (PFHpS)	- -	- -	ng/L	< 3.3 [< 3.3]	**0.44 J**	< 3.8	**0.74 J**	**0.91 J**	**0.85 J**	< 3.9	< 3.7	< 3.4	< 3.4 [< 3.4]	< 3.9	< 3.6	< 3.4	< 3.2	< 3.8 [< 4.0]	< 3.4	< 3.6	< 20	< 4.0	< 3.4	< 3.4	< 3.2
Perfluoroheptanoic acid (PFHpA)	- -	- -	ng/L	**7.7 [6.8]**	**5.1**	**5.5**	**14**	**9.4**	**8.4**	**11**	**0.55 J**	**1.0 J**	**0.52 J [0.54 J]**	< 3.9	**0.75 J**	**1.1 J**	**2.0 J**	**1.6 J [2.0 J]**	< 3.4	< 3.6	< 20	< 4.0	< 3.4	**0.63 J**	**0.52 J**
Perfluorohexanesulfonic acid (PFHxS)	51	210	ng/L	**4.2 [3.6]**	**4.5**	**10**	**3.3 J**	**3.1 J**	**3.4**	**4.1**	**0.81 J**	**0.98 J**	**1.1 J [0.95 J]**	**0.93 J**	**1.7 J**	**1.9 J**	**3.0 J**	**2.6 J [2.7 J]**	< 3.4	< 3.6	< 20	**0.60 J**	**0.52 J**	**0.61 J**	**0.89 J**
Perfluorohexanoic acid (PFHxA)	400,000	- -	ng/L	**13 [12]**	**8.9**	**9.6**	**22**	**13**	**11**	**20**	**2.0 J**	**2.9 J**	**1.1 J [1.0 J]**	< 3.9	**1.8 J**	**2.1 J**	**3.4**	**3.3 J [3.1 J]**	< 3.4	< 3.6	< 20	< 4.0	< 3.4	< 3.4	< 3.2
Perfluorononanesulfonic acid (PFNS)	- -	- -	ng/L	< 3.3 [< 3.3]	< 3.4	< 3.8	< 3.4	< 3.6	< 3.3	< 3.9	< 3.7	< 3.4	< 3.4 [< 3.4]	< 3.9	< 3.6	< 3.4	< 3.2	< 3.8 [< 4.0]	< 3.4	< 3.6	< 20	< 4.0	< 3.4	< 3.4	< 3.2
Perfluorononanoic acid (PFNA)	6.0	30	ng/L	**0.73 J [0.66 J]**	**1.0 J**	< 3.8	**2.0 J**	**2.1 J**	**2.7 J**	< 3.9	< 3.7	< 3.4	< 3.4 [< 3.4]	< 3.9	< 3.6	< 3.4	< 3.2	< 3.8 [< 4.0]	< 3.4	< 3.6	< 20	< 4.0	**0.57 J**	**1.1 J**	**1.1 J**
Perfluorooctane Sulfonamide (PFOSA)	- -	- -	ng/L	< 3.3 [< 3.3]	< 3.4	< 3.8	< 3.4	< 3.6	< 3.3	< 3.9	< 3.7	< 3.4	< 3.4 [< 3.4]	< 3.9	< 3.6	< 3.4	< 3.2	< 3.8 [< 4.0]	< 3.4	< 3.6	< 20	< 4.0	< 3.4	**0.52 J**	< 3.2
Perfluorooctane sulfonic acid (PFOS)	16	12	ng/L	**3.7 [3.3]**	**5.0**	**2.3 J**	**15**	**14**	**18**	< 3.9	< 3.7	**5**	**4.1 [3.5]**	< 3.9	< 3.6	**2.6 J**	**4.1**	**3.3 J [3.8 J]**	< 3.4	< 3.6	< 20	< 4.0	< 3.4	< 3.4	**2.6 J**
Perfluorooctanoic acid (PFOA)	8.0	170	ng/L	**17 [15]**	**15**	**11**	**37**	**29**	**34**	**22**	**4**	**3.5**	**2.4 J [2.3 J]**	< 3.9	**2.3 J**	**3.4**	**5.9**	**7.3 [6.9]**	< 3.4	< 3.6	< 20	< 4.0	**1.4 J**	**2.1 J**	**1.7 J**
Perfluoropentanesulfonic acid (PFPeS)	- -	- -	ng/L	< 3.3 [< 3.3]	**0.65 J**	< 3.8	**0.78 J**	**0.72 J**	**0.74 J**	**0.78 J**	< 3.7	< 3.4	< 3.4 [< 3.4]	< 3.9	< 3.6	< 3.4	< 3.2	< 3.8 [< 4.0]	< 3.4	< 3.6	< 20	< 4.0	< 3.4	< 3.4	< 3.2
Perfluoropentanoic acid (PFPeA)	- -	- -	ng/L	**13 [12]**	**7.7**	**8.4**	**19**	**13**	**11**	**16**	**1.9 J**	**2.1 J**	**1.0 J [1.1 J]**	**0.71 J**	**2.0 J**	**1.9 J**	**3.5**	**3.4 J [3.1 J]**	< 3.4	< 3.6	< 20	< 4.0	< 3.4	< 3.4	< 3.2
Perfluorotetradecanoic acid (PFTeA)	- -	- -	ng/L	< 3.3 [< 3.3]	< 3.4	< 3.8	< 3.4	< 3.6	< 3.3	< 3.9	< 3.7	< 3.4	< 3.4 [< 3.4]	< 3.9	< 3.6	< 3.4	< 3.2	< 3.8 [< 4.0]	< 3.4	< 3.6	< 20	< 4.0	< 3.4	< 3.4	< 3.2
Perfluorotridecanoic Acid (PFTriA)	- -	- -	ng/L	< 3.3 [< 3.3]	< 3.4	< 3.8	< 3.4	< 3.6	< 3.3	< 3.9	< 3.7	< 3.4	< 3.4 [< 3.4]	< 3.9	< 3.6	< 3.4	< 3.2	< 3.8 [< 4.0]	< 3.4	< 3.6	< 20	< 4.0	< 3.4	< 3.4	< 3.2
Perfluoroundecanoic acid (PFUnA)	- -	- -	ng/L	< 3.3 [< 3.3]	< 3.4	< 3.8	< 3.4	< 3.6	< 3.3	< 3.9	< 3.7	< 3.4	< 3.4 [< 3.4]	< 3.9	< 3.6	< 3.4	< 3.2	< 3.8 [< 4.0]	< 3.4	< 3.6	< 20	< 4.0	< 3.4	< 3.4	< 3.2
Metals (EPA Method 200.8, Standard Methods 3500-Cr)																										
Arsenic	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic (dissolved)	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium III (trivalent)	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium III (trivalent) (dissolved)	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium VI (hexavalent)	0.1	0.011	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1.0	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper (dissolved)	1.0	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead (dissolved)	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel (dissolved)	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium (dissolved)	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See notes on last page.

Table 2
Summary of Groundwater Analytical Results - 2024
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID:	Part 201 Residential Drinking Water	Part 201 Groundwater Surface Water Interface	Units	MW-22-149	MW-22-150	MW-22-150	MW-22-150	MW-22-150	MW-22-151	MW-22-151	MW-22-151	MW-22-151	MW-22-152	MW-22-152	MW-22-152	MW-22-152	MW-22-153	MW-22-153	MW-22-153	MW-22-154	MW-22-154	MW-22-154	MW-22-154	MW-22-155	MW-22-155
Date Collected:				11/15/24	02/14/24	05/23/24	08/21/24	11/19/24	02/14/24	05/23/24	08/21/24	11/19/24	02/14/24	05/23/24	08/21/24	11/20/24	04/08/24	08/19/24	11/12/24	02/13/24	05/23/24	08/19/24	11/20/24	04/08/24	08/19/24
Sample Name:				W-22-149_11152	MW-22-150	MW-22-150	W-22-150_08212	W-22-150_11192	MW-22-151	MW-22-151	W-22-151_08212	W-22-151_11192	MW-22-152	MW-22-152	W-22-152_08212	W-22-152_11202	MW-22-153	W-22-153_08192	W-22-153_11122	MW-22-154	MW-22-154	W-22-154_08192	W-22-154_11202	MW-22-155	W-22-155_08192
Sample Depth (ft. bgs):				5.5-10.5	13-18	13-18	13-18	13-18	13-18	13-18	13-18	13-18	10-15	10-15	10-15	10-15	25-30	25-30	25-30	6-11	6-11	6-11	6-11	25.5-30.5	25.5-30.5
Field Parameters																									
pH	6.5 to 8.5	6.5 to 9.0	s.u.	7.22	7.31	7.29	7.23	7.41	6.84	6.87	6.77	6.84	7.03	7.12	6.92	7.12	7.13	7.01	7.04	7.09	6.93	6.76	6.85	6.99	6.82
Conductivity	- -	- -	mS/cm	0.602	3.033	4.287	4.11	3.978	1.982	2.523	2.85	2.474	0.676	0.887	1.03	0.748	1.791	2	1.943	2.86	4.905	9.95	9.667	2.033	2.56
Turbidity	- -	- -	NTU	2.11	5.47	6.71	4.37	8.22	132.94	18.15	4.85	53.47	7.07	4.49	1.54	4.29	13.42	13	3.5	3.81	3.47	3.79	10	144.21	7.15
Dissolved oxygen (DO)	- -	- -	mg/L	6.41	0.09	0.1	0.3	0.55	0.09	0.01	6.41	0.25	0.2	0.01	0.1	0.05	0.12	0.1	0.12	0.1	0.01	6.41	1.18	0.22	0.2
Temperature	- -	- -	Deg C	15.9	9.4	15	16.8	16.1	11	15.5	17.8	17.4	11.1	13.6	15.8	14.4	14.2	16.8	14.8	7.6	13.8	16.4	13.1	15.2	17.6
Oxidation reduction potential (ORP)	- -	- -	millivolts	161.1	87.1	-68	-76.9	43.9	-38.2	-63.8	-67.9	-67.6	57.8	-13.5	9.2	23	-77.2	-102.4	-88.3	69.1	44.6	-7.3	-34.3	-47.3	-91.1
Volatile Organics (via EPA Method SW5030C/8260C)																									
1,1-Dichloroethane	880	740	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	**119**	**104 J**	**109**	< 1	< 1	< 1	< 1	< 1	NA
1,1-Dichloroethene	7.0	130	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	**2**	**1**	**2**	< 1	< 1	< 1	< 1	< 1	NA
1,1,1-Trichloroethane	200	89	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	NA
1,1,1,2-Tetrachloroethane	77	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	NA
1,1,2-Trichloroethane	5.0	330	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	NA
1,1,2,2-Tetrachloroethane	8.5	78	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	NA
1,2-Dibromo-3-chloropropane (DBCP)	0.2	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5 [< 5]	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	NA
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	NA
1,2-Dichlorobenzene	600	13	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	NA
1,2-Dichloroethane	5.0	360	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	NA
1,2-Dichloropropane	5.0	230	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	NA
1,2,3-Trichlorobenzene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5 [< 5]	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	NA
1,2,3-Trichloropropane	42	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	NA
1,2,3-Trimethylbenzene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	NA
1,2,4-Trichlorobenzene	70	99	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5 [< 5]	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	NA
1,2,4-Trimethylbenzene	63	17	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	NA
1,3-Dichlorobenzene	6.6	28	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	NA
1,3,5-Trimethylbenzene	72	45	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	NA
1,4-Dichlorobenzene	75	17	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	NA
1,4-Dioxane	7.2	280	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**79**	NA	**48**	NA	NA	NA	NA	**153**	**151**
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 25	NA	< 25 [< 25]	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	NA
2-Hexanone	1,000	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 50	NA	< 50 [< 50]	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	NA
2-Methylnaphthalene	260	19	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5 [< 5]	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	NA
2-Phenylbutane (sec-Butylbenzene)	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 50	NA	< 50 [< 50]	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	NA
Acetone	730	1,700	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 50	NA	< 50 [< 50]	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	NA
Acrylonitrile	2.6	2.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 2	NA	< 2 [< 2]	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	NA
Benzene	5.0	200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	NA
Bromobenzene	18	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	NA
Bromodichloromethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	NA
Bromoform	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	NA
Bromomethane (Methyl bromide)	10	5.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5 [< 5]	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	NA
Carbon disulfide	800	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5 [< 5]	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	NA
Carbon tetrachloride	5.0	38	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	NA
Chlorobenzene	100	25	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	NA
Chlorobromomethane	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	NA
Chloroethane	430	1,100	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5 [< 5]	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	NA
Chloroform (Trichloromethane)	80	350	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	NA
Chloromethane (Methyl chloride)	260	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5 [< 5]	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	NA
cis-1,2-Dichloroethene	70	620	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	< 1	< 1	< 1	**1**	**2**	**4**	**3**	< 1	NA
cis-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	NA
Cymene (p-Isopropyltoluene)	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5 [< 5]	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	NA
Dibromochloromethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5 [< 5]	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	NA
Dibromomethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5 [< 5]	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	NA
Dichlorodifluoromethane (CFC-12)	1,700	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5 [< 5]	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	NA
Ethyl ether	10	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 10	NA	< 10 [< 10]	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	NA
Ethylbenzene	74	18	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	NA
Hexachloroethane	7.3	6.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5 [< 5]	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	NA
Iodomethane	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	NA
Isopropyl benzene	800	28	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5 [< 5]	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	NA
Methyl tert butyl ether (MTBE)	40	7,100	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5 [< 5]	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	NA
Methylene chloride	5.0	1,500	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5 [< 5]	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	NA
Naphthalene	520	11	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5 [< 5]	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	NA
N-Butylbenzene	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	NA
N-Propylbenzene	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	NA
Styrene	100	80	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	NA
tert-Butylbenzene	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	NA
Tetrachloroethene	5.0	60	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	NA
Tetrahydrofuran	95	11,000	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 90	NA	< 90 [< 90]	< 90	< 90	< 90	< 90	< 90	< 90	< 90	< 90	NA
Toluene	790	270	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	NA
trans-1,2-Dichloroethene	100	1,500	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	NA
trans-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	NA
trans-1,4-Dichloro-2-butene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	< 1	< 1 J	< 1	< 1	< 1	< 1	< 1	< 1	NA
Trichloroethene	5.0	200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	NA
Trichlorofluoromethane (CFC-11)	2,600	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	NA
Vinyl chloride	2.0	13	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	< 1	< 1	< 1	< 1	< 1	< 1	**2**	< 1	NA
m&p-Xylene	280	49	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 2	NA	< 2 [< 2]	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	NA
o-Xylene	280	49	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1 [< 1]	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	NA
Xylenes (total)	280	49	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 2	NA	< 2 [< 2]	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	NA

See notes on last page.

Table 2
Summary of Groundwater Analytical Results - 2024
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID:	Part 201 Residential Drinking Water	Part 201 Groundwater Surface Water Interface	Units	MW-22-149	MW-22-150	MW-22-150	MW-22-150	MW-22-150	MW-22-151	MW-22-151	MW-22-151	MW-22-151	MW-22-152	MW-22-152	MW-22-152	MW-22-152	MW-22-153	MW-22-153	MW-22-153	MW-22-154	MW-22-154	MW-22-154	MW-22-154	MW-22-155	MW-22-155
Date Collected:				11/15/24	02/14/24	05/23/24	08/21/24	11/19/24	02/14/24	05/23/24	08/21/24	11/19/24	02/14/24	05/23/24	08/21/24	11/20/24	04/08/24	08/19/24	11/12/24	02/13/24	05/23/24	08/19/24	11/20/24	04/08/24	08/19/24
Sample Name:				MW-22-149_11152	MW-22-150	MW-22-150	MW-22-150_08212	MW-22-150_11192	MW-22-151	MW-22-151	MW-22-151_08212	MW-22-151_11192	MW-22-152	MW-22-152	MW-22-152_08212	MW-22-152_11202	MW-22-153	MW-22-153_08192	MW-22-153_11122	MW-22-154	MW-22-154	MW-22-154_08192	MW-22-154_11202	MW-22-155	MW-22-155_08192
Sample Depth (ft. bgs):				5.5-10.5	13-18	13-18	13-18	13-18	13-18	13-18	13-18	13-18	10-15	10-15	10-15	10-15	25-30	25-30	25-30	6-11	6-11	6-11	6-11	25.5-30.5	25.5-30.5
Semi-Volatile Organics (via EPA Method SW5030C/8270D)																									
1,2-Dichlorobenzene	600	13	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Diphenylhydrazine	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	70	99	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	6.6	28	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	75	17	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	73	11	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	370	380	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	7.7	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	730	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	120	5.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	1,800	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorophenol	45	18	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	260	19	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitroaniline	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	20	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3&4-Methylphenol	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	1.1	0.3	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	20	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Bromophenyl phenyl ether	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	150	7.4	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloroaniline	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl phenyl ether	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrophenol	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	1,300	38	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	52	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	43	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	2.1	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	5.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1.5	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	1.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	1.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethoxy)methane	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl)ether	2.0	1.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate (DEHP)	6.0	14	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butyl benzylphthalate (BBP)	1,200	67	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	1.6	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	2.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	- -	4.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	5,500	110	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	73,000	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylphthalate (DBP)	880	9.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate (DnOP)	130	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	210	1.6	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	880	12	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	1.0	0.2	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	15	0.053	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	50	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	7.3	6.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	2.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isophorone	770	1,300	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	520	11	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene	3.4	180	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodi-n-propylamine	5.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	270	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	1.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	52	2.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	4,400	450	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	140	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 2
Summary of Groundwater Analytical Results - 2024
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID:	Part 201 Residential Drinking Water	Part 201 Groundwater Surface Water Interface	Units	MW-22-149	MW-22-150	MW-22-150	MW-22-150	MW-22-150	MW-22-151	MW-22-151	MW-22-151	MW-22-151	MW-22-152	MW-22-152	MW-22-152	MW-22-152	MW-22-153	MW-22-153	MW-22-153	MW-22-154	MW-22-154	MW-22-154	MW-22-154	MW-22-155	MW-22-155
Date Collected:				11/15/24	02/14/24	05/23/24	08/21/24	11/19/24	02/14/24	05/23/24	08/21/24	11/19/24	02/14/24	05/23/24	08/21/24	11/20/24	04/08/24	08/19/24	11/12/24	02/13/24	05/23/24	08/19/24	11/20/24	04/08/24	08/19/24
Sample Name:				W-22-149_11152	MW-22-150	MW-22-150	W-22-150_08212	W-22-150_11192	MW-22-151	MW-22-151	W-22-151_08212	W-22-151_11192	MW-22-152	MW-22-152	W-22-152_08212	W-22-152_11202	MW-22-153	W-22-153_08192	W-22-153_11122	MW-22-154	MW-22-154	W-22-154_08192	W-22-154_11202	MW-22-155	W-22-155_08192
Sample Depth (ft. bgs):				5.5-10.5	13-18	13-18	13-18	13-18	13-18	13-18	13-18	13-18	10-15	10-15	10-15	10-15	25-30	25-30	25-30	6-11	6-11	6-11	6-11	25.5-30.5	25.5-30.5
Per- and Polyfluoroalkyl Substances (PFAS) (via EPA Method 537 Modified)																									
11Cl-PF3OUdS (F-53B Minor)	- -	- -	ng/L	< 7.9	< 6.9	< 6.9 H	< 6.9	< 6.9	< 7.3	< 6.8	< 40 [< 40]	< 40	< 6.7 [< 7.0]	< 6.7	< 6.8	< 6.8 [< 80]	NA	NA	NA	NA	NA	NA	NA	NA	NA
4:2 FTS	- -	- -	ng/L	< 7.9	< 6.9 Q	< 6.9 HQ	< 6.9 Q	< 6.9 Q	< 7.3 Q	< 6.8 Q	< 40 [< 40 Q]	< 40 Q	< 6.7 Q [< 7.0]	< 6.7	< 6.8	< 6.8 [< 80]	NA	NA	NA	NA	NA	NA	NA	NA	NA
6:2 FTS	- -	- -	ng/L	< 7.9	< 6.9 Q	< 6.9 HQ	< 6.9 Q	< 6.9	< 7.3 Q	< 6.8 Q	< 40 [< 40]	< 40	< 6.7 [< 7.0]	< 6.7	< 6.8	< 6.8 [< 80]	NA	NA	NA	NA	NA	NA	NA	NA	NA
8:2 FTS	- -	- -	ng/L	< 7.9	< 6.9	< 6.9 H	< 6.9	< 6.9	< 7.3 Q	< 6.8 Q	< 40 [< 40]	< 40	< 6.7 [< 7.0]	< 6.7	< 6.8	< 6.8 [< 80]	NA	NA	NA	NA	NA	NA	NA	NA	NA
9Cl-PF3ONS (F-53B Major)	- -	- -	ng/L	< 7.9	< 6.9	< 6.9 H	< 6.9	< 6.9	< 7.3	< 6.8	< 40 [< 40]	< 40	< 6.7 [< 7.0]	< 6.7	< 6.8	< 6.8 [< 80]	NA	NA	NA	NA	NA	NA	NA	NA	NA
ADONA	- -	- -	ng/L	< 7.9	< 6.9	< 6.9 H	< 6.9	< 6.9	< 7.3	< 6.8	< 40 [< 40]	< 40	< 6.7 [< 7.0]	< 6.7	< 6.8	< 6.8 [< 80]	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexafluoropropylene oxide dimer acid (HFPO-DA) (GenX)	370	- -	ng/L	< 7.9	< 6.9	< 6.9 H	< 6.9	< 6.9	< 7.3	< 6.8	< 40 [< 40]	< 40	< 6.7 [< 7.0]	< 6.7	< 6.8	< 6.8 [< 80]	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	- -	- -	ng/L	< 7.9	< 6.9	< 6.9 H	< 6.9	< 6.9	< 7.3	< 6.8	< 40 [< 40]	< 40	< 6.7 [< 7.0]	< 6.7	< 6.8	< 6.8 [< 80]	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA	- -	- -	ng/L	< 7.9	< 6.9	< 6.9 H	< 6.9	< 6.9	< 7.3	< 6.8	< 40 [< 40]	< 40	< 6.7 [< 7.0]	< 6.7	< 6.8	< 6.8 [< 80]	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorobutanesulfonic acid (PFBS)	420	670,000	ng/L	**2.0 J**	< 3.4	< 3.4 H	< 3.4	< 3.5	**8.1**	**8.1**	**6.9 J [8.2 J]**	**6.7 J**	**5.5 [5.6]**	**4.5**	**8.8**	**16 [18 J]**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorobutanoic acid (PFBA)	- -	- -	ng/L	**0.76 J**	**2.7 J**	**2.1 HJ**	**2.6 J**	**2.7 J**	**9.9**	**9.7**	**12 J [11 J]**	**9.5 J**	**5.6 [5.9]**	**4.6**	**5.3**	**6.6** [< 40]	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorodecanesulfonic acid (PFDS)	- -	- -	ng/L	< 3.9	< 3.4	< 3.4 H	< 3.4	< 3.5	< 3.6	< 3.4	< 20 [< 20]	< 20	< 3.3 [< 3.5]	< 3.4	< 3.4	< 3.4 [< 40]	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorodecanoic acid (PFDA)	- -	- -	ng/L	< 3.9	< 3.4	< 3.4 H	< 3.4	< 3.5	< 3.6	< 3.4	< 20 [< 20]	< 20	< 3.3 [< 3.5]	< 3.4	< 3.4	< 3.4 [< 40]	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorododecanoic acid (PFDoA)	- -	- -	ng/L	< 3.9	< 3.4	< 3.4 H	< 3.4	< 3.5	< 3.6	< 3.4	< 20 [< 20]	< 20	< 3.3 [< 3.5]	< 3.4	< 3.4	< 3.4 [< 40]	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanesulfonic Acid (PFHpS)	- -	- -	ng/L	< 3.9	< 3.4	< 3.4 H	< 3.4	< 3.5	< 3.6	< 3.4	< 20 [< 20]	< 20	< 3.3 [< 3.5]	< 3.4	< 3.4	< 3.4 [< 40]	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid (PFHpA)	- -	- -	ng/L	< 3.9	< 3.4	< 3.4 H	**0.57 J**	< 3.5	**3.2 J**	**3.7**	**4.0 J [4.2 J]**	**4.0 J**	**1.4 J [1.4 J]**	**1.2 J**	**0.90 J**	**1.6 J** [< 40]	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid (PFHxS)	51	210	ng/L	**1.0 J**	< 3.4	< 3.4 H	< 3.4	< 3.5	**1.8 J**	**1.6 J**	< 20 [< 20]	**3.5 J**	**3.2 J [3.4 J]**	**2.0 J**	**5.2**	**4.5 [5.9 J]**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanoic acid (PFHxA)	400,000	- -	ng/L	< 3.9	< 3.4	< 3.4 H	< 3.4	< 3.5	**5.2**	**7.7**	**8.6 J [7.5 J]**	< 20	**3.4 [3.1 J]**	< 3.4	**2.1 J**	**3.5** [< 40]	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanesulfonic acid (PFNS)	- -	- -	ng/L	< 3.9	< 3.4	< 3.4 H	< 3.4	< 3.5	< 3.6	< 3.4	< 20 [< 20]	< 20	< 3.3 [< 3.5]	< 3.4	< 3.4	< 3.4 [< 40]	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid (PFNA)	6.0	30	ng/L	**0.57 J**	< 3.4	< 3.4 H	< 3.4	< 3.5	**0.57 J**	**0.50 J**	< 20 [< 20]	< 20	< 3.3 [< 3.5]	< 3.4	< 3.4	< 3.4 [< 40]	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonamide (PFOSA)	- -	- -	ng/L	< 3.9	< 3.4	< 3.4 H	< 3.4	< 3.5	< 3.6	< 3.4	< 20 [< 20]	< 20	< 3.3 [< 3.5]	< 3.4	< 3.4	< 3.4 [< 40]	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane sulfonic acid (PFOS)	16	12	ng/L	< 3.9	< 3.4	< 3.4 H	< 3.4	< 3.5	**4.6**	**4.1**	< 20 [< 20]	< 20	**< 3.3 [1.8 J]**	< 3.4	**2.1 J**	< 3.4 [< 40]	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic acid (PFOA)	8.0	170	ng/L	**1.6 J**	< 3.4	**0.72 HJ**	< 3.4	< 3.5	**6.9**	**7.6**	**8.6 J [6.0 J]**	**15 J**	**4 [3.7]**	**2.9 J**	**3.4**	**6.4 [9.4 J]**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoropentanesulfonic acid (PFPeS)	- -	- -	ng/L	< 3.9	< 3.4	< 3.4 H	< 3.4	< 3.5	< 3.6	< 3.4	< 20 [< 20]	< 20	< 3.3 [< 3.5]	< 3.4	< 3.4	< 3.4 [< 40]	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoropentanoic acid (PFPeA)	- -	- -	ng/L	< 3.9	**1.2 J**	**1.1 HJ**	**1.3 J**	**1.6 J**	**9.9**	**12**	**16 J [17 J]**	**12 J**	**4 [4.2]**	**3.0 J**	**2.6 J**	**5.5 [6.6 J]**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorotetradecanoic acid (PFTeA)	- -	- -	ng/L	< 3.9	< 3.4	< 3.4 H	< 3.4	< 3.5	< 3.6	< 3.4	< 20 [< 20]	< 20	< 3.3 [< 3.5]	< 3.4	< 3.4	< 3.4 [< 40]	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorotridecanoic Acid (PFTriA)	- -	- -	ng/L	< 3.9	< 3.4	< 3.4 H	< 3.4	< 3.5	< 3.6	< 3.4	< 20 [< 20]	< 20	< 3.3 [< 3.5]	< 3.4	< 3.4	< 3.4 [< 40]	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroundecanoic acid (PFUnA)	- -	- -	ng/L	< 3.9	< 3.4	< 3.4 H	< 3.4	< 3.5	< 3.6	< 3.4	< 20 [< 20]	< 20	< 3.3 [< 3.5]	< 3.4	< 3.4	< 3.4 [< 40]	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals (EPA Method 200.8, Standard Methods 3500-Cr)																									
Arsenic	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic (dissolved)	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium III (trivalent)	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium III (trivalent) (dissolved)	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium VI (hexavalent)	0.1	0.011	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1.0	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper (dissolved)	1.0	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead (dissolved)	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel (dissolved)	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium (dissolved)	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See notes on last page.

Table 2
Summary of Groundwater Analytical Results - 2024
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID:	Part 201 Residential Drinking Water	Part 201 Groundwater Surface Water Interface	Units	MW-22-155	MW-22-156	MW-22-156	MW-22-156	MW-22-157	MW-22-157	MW-22-157	MW-22-158	MW-22-158	MW-22-158	MW-22-158	MW-22-160	MW-22-160	MW-22-160	MW-22-160	MW-23	MW-23-161	MW-23-161	MW-23-161	MW-23-162	MW-23-162	MW-23-162
Date Collected:				11/13/24	04/08/24	08/19/24	11/12/24	04/08/24	08/19/24	11/12/24	02/14/24	05/22/24	08/20/24	11/13/24	02/14/24	05/22/24	08/20/24	11/13/24	05/21/24	04/08/24	08/19/24	11/12/24	04/08/24	08/19/24	11/12/24
Sample Name:				MW-22-155_11132	MW-22-156	MW-22-156_08192	MW-22-156_11122	MW-22-157	MW-22-157_08192	MW-22-157_11122	MW-22-158	MW-22-158	MW-22-158_08202	MW-22-158_11132	MW-22-160	MW-22-160	MW-22-160_08202	MW-22-160_11132	MW-23	MW-23-161	MW-23-161_08192	MW-23-161_11122	MW-23-162	MW-23-162_08192	MW-23-162_11122
Sample Depth (ft. bgs):				25.5-30.5	23-28	23-28	23-28	24-29	24-29	24-29	16-21	16-21	16-21	16-21	14-19	14-19	14-19	14-19	52-62	20-25	20-25	20-25	29-34	29-34	29-34
Field Parameters																									
pH	6.5 to 8.5	6.5 to 9.0	s.u.	6.87	7.25	7.03	7.17	7.09	7.02	6.99	7.08	7.05	7.04	7.01	6.91	6.91	6.9	6.87	7.44	7.16	7.13	7.04	6.92	6.83	6.83
Conductivity	- -	- -	mS/cm	2.387	1.47	1.63	1.328	1.146	1.29	1.558	3.577	3.465	3.37	3.367	1.186	1.178	0.68	1.112	1.212	1.293	1.45	1.499	2.433	3.14	3.149
Turbidity	- -	- -	NTU	5.69	31.93	9.31	5.73	9.22	8.73	142.6	8.86	9.74	5.62	5.72	7.21	14.87	9.05	3.94	275.35	64.38	6.99	35.17	30.41	5.78	11.63
Dissolved oxygen (DO)	- -	- -	mg/L	0.26	0.53	0.21	0.15	0.12	0.13	0	0.23	0.46	0.19	0.19	0.04	0.67	0.65	0.13	0.94	0.08	0.12	0	0.29	0.24	0
Temperature	- -	- -	Deg C	13.4	14.4	16.6	14.7	13.6	19.7	15.3	8.6	15.6	16	15.5	10.5	13.4	18.9	15.1	15.9	12.8	16.5	13.3	13.4	16.9	12.8
Oxidation reduction potential (ORP)	- -	- -	millivolts	-85	-82.3	-79.4	-99	-56	-51.1	-101.5	-100.9	-36.5	-36.2	-42	-112.6	-54.3	-47.7	-44.5	-113.9	-67.5	-103.4	-124.5	-52.2	-72.2	-91.4
Volatile Organics (via EPA Method SW5030C/8260C)																									
1,1-Dichloroethane	880	740	µg/L	NA	**250**	**220**	**199**	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	7.0	130	µg/L	NA	**20**	**20**	**15**	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	200	89	µg/L	NA	< 10	< 10	< 1	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1,2-Tetrachloroethane	77	- -	µg/L	NA	< 10	< 10	< 1	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	5.0	330	µg/L	NA	< 10	< 10	< 1	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	8.5	78	µg/L	NA	< 10	< 10	< 1	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane (DBCP)	0.2	- -	µg/L	NA	< 50	< 50	< 5	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7	µg/L	NA	< 10	< 10	< 1	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	600	13	µg/L	NA	< 10	< 10	< 1	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	5.0	360	µg/L	NA	< 10	< 10	< 1	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	5.0	230	µg/L	NA	< 10	< 10	< 1	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichlorobenzene	- -	- -	µg/L	NA	< 50	< 50	< 5	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	42	- -	µg/L	NA	< 10	< 10	< 1	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trimethylbenzene	- -	- -	µg/L	NA	< 10	< 10	< 1	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	70	99	µg/L	NA	< 50	< 50	< 5	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	63	17	µg/L	NA	< 10	< 10	< 1	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	6.6	28	µg/L	NA	< 10	< 10	< 1	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	72	45	µg/L	NA	< 10	< 10	< 1	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	75	17	µg/L	NA	< 10	< 10	< 1	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	7.2	280	µg/L	**159**	**116**	NA	**63**	**61**	NA	**41**	NA	NA	NA	NA	NA	NA	NA	NA	NA	**52**	**43 J**	**49**	**28**	**29**	**31**
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200	µg/L	NA	< 250	< 250	< 25	< 25	< 25	< 25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	1,000	- -	µg/L	NA	< 500	< 500	< 50	< 50	< 50	< 50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	260	19	µg/L	NA	< 50	< 50	< 5	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Phenylbutane (sec-Butylbenzene)	80	- -	µg/L	NA	< 10	< 10	< 1	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	- -	µg/L	NA	< 500	< 500	< 50	< 50	< 50	< 50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	730	1,700	µg/L	NA	< 500	< 500	< 50	< 50	< 50	< 50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrylonitrile	2.6	2.0	µg/L	NA	< 20	< 20	< 2	< 2	< 2	< 2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	5.0	200	µg/L	NA	< 10	< 10	< 1	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromobenzene	18	- -	µg/L	NA	< 10	< 10	< 1	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	80	- -	µg/L	NA	< 10	< 10	< 1	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	80	- -	µg/L	NA	< 10	< 10	< 1	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane (Methyl bromide)	10	5.0	µg/L	NA	< 50	< 50	< 5	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	800	- -	µg/L	NA	< 50	< 50	< 5	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon tetrachloride	5.0	38	µg/L	NA	< 10	< 10	< 1	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	100	25	µg/L	NA	< 10	< 10	< 1	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobromomethane	- -	- -	µg/L	NA	< 10	< 10	< 1	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	430	1,100	µg/L	NA	< 50	< 50	**44**	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform (Trichloromethane)	80	350	µg/L	NA	< 10	< 10	< 1	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane (Methyl chloride)	260	- -	µg/L	NA	< 50	< 50	< 5	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	70	620	µg/L	NA	< 10	< 10	< 1	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	- -	- -	µg/L	NA	< 10	< 10	< 1	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cymene (p-Isopropyltoluene)	- -	- -	µg/L	NA	< 50	< 50	< 5	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	80	- -	µg/L	NA	< 50	< 50	< 5	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromomethane	80	- -	µg/L	NA	< 50	< 50	< 5	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane (CFC-12)	1,700	- -	µg/L	NA	< 50	< 50	< 5	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl ether	10	- -	µg/L	NA	< 100	< 100	< 10	< 10	< 10	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	74	18	µg/L	NA	< 10	< 10	< 1	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	7.3	6.7	µg/L	NA	< 50	< 50	< 5	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iodomethane	- -	- -	µg/L	NA	< 10	< 10	< 1	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropyl benzene	800	28	µg/L	NA	< 50	< 50	< 5	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert butyl ether (MTBE)	40	7,100	µg/L	NA	< 50	< 50	< 5	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	5.0	1,500	µg/L	NA	< 50	< 50	< 5	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	520	11	µg/L	NA	< 50	< 50	< 5	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Butylbenzene	80	- -	µg/L	NA	< 10	< 10	< 1	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Propylbenzene	80	- -	µg/L	NA	< 10	< 10	< 1	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	100	80	µg/L	NA	< 10	< 10	< 1	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	80	- -	µg/L	NA	< 10	< 10	< 1	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	5.0	60	µg/L	NA	< 10	< 10	< 1	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrahydrofuran	95	11,000	µg/L	NA	< 900	< 900	< 90	< 90	< 90	< 90	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	790	270	µg/L	NA	< 10	< 10	< 1	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	100	1,500	µg/L	NA	< 10	< 10	< 1	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	- -	- -	µg/L	NA	< 10	< 10	< 1	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,4-Dichloro-2-butene	- -	- -	µg/L	NA	< 10	< 10	< 1	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	5.0	200	µg/L	NA	< 10	< 10	< 1	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane (CFC-11)	2,600	- -	µg/L	NA	< 10	< 10	< 1	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	2.0	13	µg/L	NA	< 10	< 10	**1**	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m&p-Xylene	280	49	µg/L	NA	< 20	< 20	< 2	< 2	< 2	< 2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	280	49	µg/L	NA	< 10	< 10	< 1	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	280	49	µg/L	NA	< 20	< 20	< 2	< 2	< 2	< 2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See notes on last page.

Table 2
Summary of Groundwater Analytical Results - 2024
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name: Sample Depth (ft. bgs):	Part 201 Residential Drinking Water	Part 201 Groundwater Surface Water Interface	Units	MW-22-155 11/13/24 MW-22-155_11132 25.5-30.5	MW-22-156 04/08/24 MW-22-156 23-28	MW-22-156 08/19/24 MW-22-156_08192 23-28	MW-22-156 11/12/24 MW-22-156_11122 23-28	MW-22-157 04/08/24 MW-22-157 24-29	MW-22-157 08/19/24 MW-22-157_08192 24-29	MW-22-157 11/12/24 MW-22-157_11122 24-29	MW-22-158 02/14/24 MW-22-158 16-21	MW-22-158 05/22/24 MW-22-158 16-21	MW-22-158 08/20/24 MW-22-158_08202 16-21	MW-22-158 11/13/24 MW-22-158_11132 16-21	MW-22-160 02/14/24 MW-22-160 14-19	MW-22-160 05/22/24 MW-22-160 14-19	MW-22-160 08/20/24 MW-22-160_08202 14-19	MW-22-160 11/13/24 MW-22-160_11132 14-19	MW-23 05/21/24 MW-23 52-62	MW-23-161 04/08/24 MW-23-161 20-25	MW-23-161 08/19/24 MW-23-161_08192 20-25	MW-23-161 11/12/24 MW-23-161_11122 20-25	MW-23-162 04/08/24 MW-23-162 29-34	MW-23-162 08/19/24 MW-23-162_08192 29-34	MW-23-162 11/12/24 MW-23-162_11122 29-34
Semi-Volatile Organics (via EPA Method SW5030C/8270D)																								
1,2-Dichlorobenzene	600	13	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Diphenylhydrazine	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	70	99	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	6.6	28	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	75	17	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	73	11	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	370	380	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	7.7	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	730	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	120	5.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	1,800	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorophenol	45	18	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	260	19	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitroaniline	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	20	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3&4-Methylphenol	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	1.1	0.3	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	20	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Bromophenyl phenyl ether	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	150	7.4	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloroaniline	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl phenyl ether	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrophenol	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	1,300	38	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	52	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	43	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	2.1	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	5.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1.5	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	1.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	1.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethoxy)methane	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl)ether	2.0	1.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate (DEHP)	6.0	14	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butyl benzylphthalate (BBP)	1,200	67	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	1.6	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	2.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	- -	4.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	5,500	110	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	73,000	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylphthalate (DBP)	880	9.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate (DnOP)	130	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	210	1.6	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	880	12	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	1.0	0.2	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	15	0.053	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	50	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	7.3	6.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	2.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isophorone	770	1,300	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	520	11	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene	3.4	180	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodi-n-propylamine	5.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	270	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	1.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	52	2.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	4,400	450	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	140	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 2
Summary of Groundwater Analytical Results - 2024
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name: Sample Depth (ft. bgs):	Part 201 Residential Drinking Water	Part 201 Groundwater Surface Water Interface	Units	MW-22-155 11/13/24 MW-22-155_11132 25.5-30.5	MW-22-156 04/08/24 MW-22-156 23-28	MW-22-156 08/19/24 MW-22-156_08192 23-28	MW-22-156 11/12/24 MW-22-156_11122 23-28	MW-22-157 04/08/24 MW-22-157 24-29	MW-22-157 08/19/24 MW-22-157_08192 24-29	MW-22-157 11/12/24 MW-22-157_11122 24-29	MW-22-158 02/14/24 MW-22-158 16-21	MW-22-158 05/22/24 MW-22-158 16-21	MW-22-158 08/20/24 MW-22-158_08202 16-21	MW-22-158 11/13/24 MW-22-158_11132 16-21	MW-22-160 02/14/24 MW-22-160 14-19	MW-22-160 05/22/24 MW-22-160 14-19	MW-22-160 08/20/24 MW-22-160_08202 14-19	MW-22-160 11/13/24 MW-22-160_11132 14-19	MW-23 05/21/24 MW-23 52-62	MW-23-161 04/08/24 MW-23-161 20-25	MW-23-161 08/19/24 MW-23-161_08192 20-25	MW-23-161 11/12/24 MW-23-161_11122 20-25	MW-23-162 04/08/24 MW-23-162 29-34	MW-23-162 08/19/24 MW-23-162_08192 29-34	MW-23-162 11/12/24 MW-23-162_11122 29-34
Per- and Polyfluoroalkyl Substances (PFAS) (via EPA Method 537 Modified)																									
11Cl-PF3OUdS (F-53B Minor)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	< 6.7	< 7.3	< 7.0	< 7.8	< 7.3	< 6.9	< 6.7	< 8.1	< 7.3	NA	NA	NA	NA	NA	NA
4:2 FTS	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	< 6.7 Q	< 7.3	< 7.0	< 7.8	< 7.3	< 6.9	< 6.7	< 8.1	< 7.3 Q	NA	NA	NA	NA	NA	NA
6:2 FTS	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	< 6.7	< 7.3	< 7.0	< 7.8	< 7.3	< 6.9	< 6.7	< 8.1	< 7.3	NA	NA	NA	NA	NA	NA
8:2 FTS	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	< 6.7	< 7.3	< 7.0	< 7.8	< 7.3	< 6.9	< 6.7	< 8.1	< 7.3	NA	NA	NA	NA	NA	NA
9Cl-PF3ONS (F-53B Major)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	< 6.7	< 7.3	< 7.0	< 7.8	< 7.3	< 6.9	< 6.7	< 8.1	< 7.3	NA	NA	NA	NA	NA	NA
ADONA	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	< 6.7	< 7.3	< 7.0	< 7.8	< 7.3	< 6.9	< 6.7	< 8.1	< 7.3	NA	NA	NA	NA	NA	NA
Hexafluoropropylene oxide dimer acid (HFPO-DA) (GenX)	370	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	< 6.7	< 7.3	< 7.0	< 7.8	< 7.3	< 6.9	< 6.7	< 8.1	< 7.3	NA	NA	NA	NA	NA	NA
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	< 6.7	< 7.3	< 7.0	< 7.8	< 7.3	< 6.9	< 6.7	< 8.1	< 7.3	NA	NA	NA	NA	NA	NA
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	< 6.7	< 7.3	< 7.0	< 7.8	< 7.3	< 6.9	< 6.7	< 8.1	< 7.3	NA	NA	NA	NA	NA	NA
Perfluorobutanesulfonic acid (PFBS)	420	670,000	ng/L	NA	NA	NA	NA	NA	NA	NA	**1.4 J**	**1.4 J**	**1.5 J**	**1.8 J**	< 3.6	< 3.5	< 3.3	< 4.0	< 3.7	NA	NA	NA	NA	NA	NA
Perfluorobutanoic acid (PFBA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	**5.1**	**4.9**	**4.6**	**5.5**	**1.1 J**	**1.2 J**	**0.97 J**	**1.3 J**	**1.8 J**	NA	NA	NA	NA	NA	NA
Perfluorodecanesulfonic acid (PFDS)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	< 3.4	< 3.6	< 3.5	< 3.9	< 3.6	< 3.5	< 3.3	< 4.0	< 3.7	NA	NA	NA	NA	NA	NA
Perfluorodecanoic acid (PFDA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	< 3.4	< 3.6	< 3.5	< 3.9	< 3.6	< 3.5	< 3.3	< 4.0	< 3.7	NA	NA	NA	NA	NA	NA
Perfluorododecanoic acid (PFDoA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	< 3.4	< 3.6	< 3.5	< 3.9	< 3.6	< 3.5	< 3.3	< 4.0	< 3.7	NA	NA	NA	NA	NA	NA
Perfluoroheptanesulfonic Acid (PFHpS)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	< 3.4	< 3.6	< 3.5	< 3.9	< 3.6	< 3.5	< 3.3	< 4.0	< 3.7	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid (PFHpA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	**1.1 J**	< 3.6	**1.2 J**	**1.2 J**	< 3.6	< 3.5	< 3.3	< 4.0	< 3.7	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid (PFHxS)	51	210	ng/L	NA	NA	NA	NA	NA	NA	NA	< 3.4	< 3.6	< 3.5	< 3.9	< 3.6	< 3.5	< 3.3	< 4.0	< 3.7	NA	NA	NA	NA	NA	NA
Perfluorohexanoic acid (PFHxA)	400,000	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	**2.8 J**	**2.5 J**	**2.3 J**	**2.9 J**	< 3.6	< 3.5	< 3.3	< 4.0	< 3.7	NA	NA	NA	NA	NA	NA
Perfluorononanesulfonic acid (PFNS)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	< 3.4	< 3.6	< 3.5	< 3.9	< 3.6	< 3.5	< 3.3	< 4.0	< 3.7	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid (PFNA)	6.0	30	ng/L	NA	NA	NA	NA	NA	NA	NA	< 3.4	< 3.6	< 3.5	< 3.9	< 3.6	< 3.5	< 3.3	< 4.0	< 3.7	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonamide (PFOSA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	< 3.4	< 3.6	< 3.5	< 3.9	< 3.6	< 3.5	< 3.3	< 4.0	< 3.7	NA	NA	NA	NA	NA	NA
Perfluorooctane sulfonic acid (PFOS)	16	12	ng/L	NA	NA	NA	NA	NA	NA	NA	< 3.4	< 3.6	< 3.5	< 3.9	< 3.6	< 3.5	< 3.3	< 4.0	**2.5 J**	NA	NA	NA	NA	NA	NA
Perfluorooctanoic acid (PFOA)	8.0	170	ng/L	NA	NA	NA	NA	NA	NA	NA	**0.86 J**	**1.2 J**	**0.95 J**	**1.3 J**	< 3.6	< 3.5	< 3.3	< 4.0	**0.85 J**	NA	NA	NA	NA	NA	NA
Perfluoropentanesulfonic acid (PFPeS)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	< 3.4	< 3.6	< 3.5	< 3.9	< 3.6	< 3.5	< 3.3	< 4.0	< 3.7	NA	NA	NA	NA	NA	NA
Perfluoropentanoic acid (PFPeA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	**2.9 J**	**2.9 J**	**2.7 J**	**2.8 J**	< 3.6	< 3.5	< 3.3	< 4.0	**2.8 J**	NA	NA	NA	NA	NA	NA
Perfluorotetradecanoic acid (PFTeA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	< 3.4	< 3.6	< 3.5	< 3.9	< 3.6	< 3.5	< 3.3	< 4.0	< 3.7	NA	NA	NA	NA	NA	NA
Perfluorotridecanoic Acid (PFTriA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	< 3.4	< 3.6	< 3.5	< 3.9	< 3.6	< 3.5	< 3.3	< 4.0	< 3.7	NA	NA	NA	NA	NA	NA
Perfluoroundecanoic acid (PFUnA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	< 3.4	< 3.6	< 3.5	< 3.9	< 3.6	< 3.5	< 3.3	< 4.0	< 3.7	NA	NA	NA	NA	NA	NA
Metals (EPA Method 200.8, Standard Methods 3500-Cr)																									
Arsenic	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic (dissolved)	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium III (trivalent)	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium III (trivalent) (dissolved)	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium VI (hexavalent)	0.1	0.011	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1.0	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper (dissolved)	1.0	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead (dissolved)	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel (dissolved)	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium (dissolved)	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See notes on last page.

Table 2
Summary of Groundwater Analytical Results - 2024
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name: Sample Depth (ft. bgs):	Part 201 Residential Drinking Water	Part 201 Groundwater Surface Water Interface	Units	MW-23-163 04/08/24 MW-23-163 20-25	MW-23-163 08/19/24 MW-23-163_08192 20-25	MW-23-163 11/12/24 MW-23-163_11122 20-25	MW-91-2R 05/22/24 MW-91-2R 68-78	MW-91-5 05/20/24 MW-91-5 112.5-128	MW-91-6 05/24/24 MW-91-6 82-98	MWBP-10-UST5- 05/23/24 MWBP-10-UST5- 28-38	MWBP-11-UST1- 05/23/24 MWBP-11-UST1- 9-19	MWBP-12-UST1- 05/23/24 MWBP-12-UST1- 15-25	P2-MW-02 05/16/24 P2-MW-02 31-41	P2-MW-04 05/16/24 P2-MW-04 26-36	P3-SB-28 05/22/24 P3-SB-28 8-13	P6-SB-07 05/23/24 P6-SB-07 15-20	PW-14-01 05/15/24 PW-14-01 71.6-76.8	PW-14-01 11/13/24 PW-14-01_11132 71.6-76.8	PW-14-02 02/13/24 PW-14-02 75-80	PW-14-02 05/15/24 PW-14-02 75-80	PW-14-02 08/19/24 PW-14-02_08192 75-80	PW-14-02 11/13/24 PW-14-02_11132 75-80	PW-14-03R 02/13/24 PW-14-03R 85-90	PW-14-03R 05/17/24 PW-14-03R 85-90	PW-14-03R 11/19/24 W-14-03R_11192 85-90
Field Parameters																									
pH	6.5 to 8.5	6.5 to 9.0	s.u.	7.15	7.08	7.1	7.07	6.94	6.57	7.07	8.97	7.66	6.82	7.2	7.53	7.3	6.98	7.14	7.03	6.79	7.74	7.6	5.19	6.14	2.73
Conductivity	- -	- -	mS/cm	1.097	1.27	1.225	1.757	0.16	2.471	3.475	1.425	0.805	1.166	1.33	0.446	0.683	2.804	2.683	2.443	1.848	1.85	1.48	3.908	2.991	4.141
Turbidity	- -	- -	NTU	69.89	6.09	11.88	9.18	20.15	20.11	95.64	198.98	23.74	19.4	18.5	4.63	353.31	314.75	8.33	147.69	98.55	1.16	3.06	135.65	248	113.98
Dissolved oxygen (DO)	- -	- -	mg/L	0.13	2.98	0	0.29	0.88	0.7	1.04	1.22	1.7	0.27	0	0.13	0	5.56	9.58	0.87	1.41	8.83	11.29	2.92	0.38	2.08
Temperature	- -	- -	Deg C	12.1	17	12.1	18.6	14.4	16.2	19.5	17	15.1	13.8	13.2	16.9	13.9	15.4	13.4	8.4	17	18.6	11	7.2	21.7	13
Oxidation reduction potential (ORP)	- -	- -	millivolts	-73	-98.6	-91.8	-106.6	-87.4	-65	-78.6	112.2	190.3	78.7	-100	133	-98.3	-10.6	113.5	-140.6	52.6	98.6	113.7	49.3	213.8	547.1
Volatile Organics (via EPA Method SW5030C/8260C)																									
1,1-Dichloroethane	880	740	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA
1,1-Dichloroethene	7.0	130	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	200	89	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA
1,1,1,2-Tetrachloroethane	77	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	5.0	330	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	8.5	78	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane (DBCP)	0.2	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	600	13	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA
1,2-Dichloroethane	5.0	360	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA
1,2-Dichloropropane	5.0	230	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA
1,2,3-Trichlorobenzene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	42	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA
1,2,3-Trimethylbenzene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	70	99	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	63	17	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	6.6	28	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	72	45	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	75	17	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA
1,4-Dioxane	7.2	280	µg/L	**11**	**11**	**10**	**7 [7]**	< 0.20*	**0.70***	NA	NA	NA	NA	**29**	NA	NA	NA	< 1	**55 [51]**	**84**	**8 [8]**	**6**	**6**	**13**	**11**
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 25	NA	NA	NA	NA	NA	NA	NA	< 25	NA	NA	NA	NA	NA
2-Hexanone	1,000	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 50	NA	NA	NA	NA	NA	NA	NA	< 50	NA	NA	NA	NA	NA
2-Methylnaphthalene	260	19	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA
2-Phenylbutane (sec-Butylbenzene)	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 50	NA	NA	NA	NA	NA	NA	NA	< 50	NA	NA	NA	NA	NA
Acetone	730	1,700	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 50	NA	NA	NA	NA	NA	NA	NA	< 50	NA	NA	NA	NA	NA
Acrylonitrile	2.6	2.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 2	NA	NA	NA	NA	NA	NA	NA	< 2	NA	NA	NA	NA	NA
Benzene	5.0	200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA
Bromobenzene	18	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA
Bromodichloromethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA
Bromoform	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA
Bromomethane (Methyl bromide)	10	5.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA
Carbon disulfide	800	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA
Carbon tetrachloride	5.0	38	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA
Chlorobenzene	100	25	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA
Chlorobromomethane	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA
Chloroethane	430	1,100	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA
Chloroform (Trichloromethane)	80	350	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA
Chloromethane (Methyl chloride)	260	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	70	620	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA
Cymene (p-Isopropyltoluene)	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA
Dibromochloromethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA
Dibromomethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA
Dichlorodifluoromethane (CFC-12)	1,700	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA
Ethyl ether	10	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 10	NA	NA	NA	NA	NA	NA	NA	< 10	NA	NA	NA	NA	NA
Ethylbenzene	74	18	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA
Hexachloroethane	7.3	6.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA
Iodomethane	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA
Isopropyl benzene	800	28	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA
Methyl tert butyl ether (MTBE)	40	7,100	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA
Methylene chloride	5.0	1,500	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA
Naphthalene	520	11	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA	NA	NA	NA
N-Butylbenzene	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA
N-Propylbenzene	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA
Styrene	100	80	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA
tert-Butylbenzene	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA
Tetrachloroethene	5.0	60	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	**1**	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA
Tetrahydrofuran	95	11,000	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 90	NA	NA	NA	NA	NA	NA	NA	< 90	NA	NA	NA	NA	NA
Toluene	790	270	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	100	1,500	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA
trans-1,4-Dichloro-2-butene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA
Trichloroethene	5.0	200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	**1**	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA
Trichlorofluoromethane (CFC-11)	2,600	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA
Vinyl chloride	2.0	13	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA
m&p-Xylene	280	49	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 2	NA	NA	NA	NA	NA	NA	NA	< 2	NA	NA	NA	NA	NA
o-Xylene	280	49	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA	NA	NA	NA
Xylenes (total)	280	49	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 2	NA	NA	NA	NA	NA	NA	NA	< 2	NA	NA	NA	NA	NA

See notes on last page.

Table 2
Summary of Groundwater Analytical Results - 2024
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID:	Part 201 Residential Drinking Water	Part 201 Groundwater Surface Water Interface	Units	MW-23-163	MW-23-163	MW-23-163	MW-91-2R	MW-91-5	MW-91-6	MWBP-10-UST5-	MWBP-11-UST1-	MWBP-12-UST1-	P2-MW-02	P2-MW-04	P3-SB-28	P6-SB-07	PW-14-01	PW-14-01	PW-14-02	PW-14-02	PW-14-02	PW-14-02	PW-14-03R	PW-14-03R	PW-14-03R
Date Collected:				04/08/24	08/19/24	11/12/24	05/22/24	05/20/24	05/24/24	05/23/24	05/23/24	05/23/24	05/16/24	05/16/24	05/22/24	05/23/24	05/15/24	11/13/24	02/13/24	05/15/24	08/19/24	11/13/24	02/13/24	05/17/24	11/19/24
Sample Name:				MW-23-163	W-23-163_08192	W-23-163_11122	MW-91-2R	MW-91-5	MW-91-6	MWBP-10-UST5-	MWBP-11-UST1-	MWBP-12-UST1-	P2-MW-02	P2-MW-04	P3-SB-28	P6-SB-07	PW-14-01	PW-14-01_11132	PW-14-02	PW-14-02	W-14-02_08192	W-14-02_11132	PW-14-03R	PW-14-03R	W-14-03R_11192
Sample Depth (ft. bgs):				20-25	20-25	20-25	68-78	112.5-128	82-98	28-38	9-19	15-25	31-41	26-36	8-13	15-20	71.6-76.8	71.6-76.8	75-80	75-80	75-80	75-80	85-90	85-90	85-90
Semi-Volatile Organics (via EPA Method SW5030C/8270D)																									
1,2-Dichlorobenzene	600	13	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Diphenylhydrazine	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	70	99	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	6.6	28	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	75	17	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	73	11	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 10	NA	< 10	< 10	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	370	380	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 25	NA	< 25	< 25	< 25	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	7.7	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	730	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	120	5.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 4	NA	< 4	< 4	< 4	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	1,800	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorophenol	45	18	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 10	NA	< 10	< 10	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	260	19	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 10	NA	< 10	< 10	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitroaniline	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 25	NA	< 25	< 25	< 25	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	20	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA
3&4-Methylphenol	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 20	NA	< 20	< 20	< 20	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	1.1	0.3	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 25	NA	< 25	< 25	< 25	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	20	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 20	NA	< 20	< 20	< 20	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Bromophenyl phenyl ether	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	150	7.4	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloroaniline	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 10	NA	< 10	< 10	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl phenyl ether	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 25	NA	< 25	< 25	< 25	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrophenol	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 25	NA	< 25	< 25	< 25	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	1,300	38	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	52	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	43	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	2.1	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	5.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1.5	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	1.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	1.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethoxy)methane	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl)ether	2.0	1.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate (DEHP)	6.0	14	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butyl benzylphthalate (BBP)	1,200	67	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	1.6	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	2.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 2	NA	< 2	< 2	< 2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	- -	4.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 4	NA	< 4	< 4	< 4	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	5,500	110	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	73,000	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylphthalate (DBP)	880	9.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate (DnOP)	130	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	210	1.6	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	880	12	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	1.0	0.2	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	15	0.053	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 10	NA	< 10	< 10	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	50	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	7.3	6.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	2.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 2	NA	< 2	< 2	< 2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isophorone	770	1,300	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	520	11	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene	3.4	180	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodi-n-propylamine	5.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	270	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	1.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	52	2.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 2	NA	< 2	< 2	< 2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	4,400	450	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	140	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 2
Summary of Groundwater Analytical Results - 2024
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name: Sample Depth (ft. bgs):	Part 201 Residential Drinking Water	Part 201 Groundwater Surface Water Interface	Units	MW-23-163 04/08/24 MW-23-163 20-25	MW-23-163 08/19/24 MW-23-163_08192 20-25	MW-23-163 11/12/24 MW-23-163_11122 20-25	MW-91-2R 05/22/24 MW-91-2R 68-78	MW-91-5 05/20/24 MW-91-5 112.5-128	MW-91-6 05/24/24 MW-91-6 82-98	MWBP-10-UST5- 05/23/24 MWBP-10-UST5- 28-38	MWBP-11-UST1- 05/23/24 MWBP-11-UST1- 9-19	MWBP-12-UST1- 05/23/24 MWBP-12-UST1- 15-25	P2-MW-02 05/16/24 P2-MW-02 31-41	P2-MW-04 05/16/24 P2-MW-04 26-36	P3-SB-28 05/22/24 P3-SB-28 8-13	P6-SB-07 05/23/24 P6-SB-07 15-20	PW-14-01 05/15/24 PW-14-01 71.6-76.8	PW-14-01 11/13/24 PW-14-01_11132 71.6-76.8	PW-14-02 02/13/24 PW-14-02 75-80	PW-14-02 05/15/24 PW-14-02 75-80	PW-14-02 08/19/24 PW-14-02_08192 75-80	PW-14-02 11/13/24 PW-14-02_11132 75-80	PW-14-03R 02/13/24 PW-14-03R 85-90	PW-14-03R 05/17/24 PW-14-03R 85-90	PW-14-03R 11/19/24 W-14-03R_11192 85-90
Per- and Polyfluoroalkyl Substances (PFAS) (via EPA Method 537 Modified)																										
11Cl-PF3OUdS (F-53B Minor)	- -	- -	ng/L	NA	NA	NA	< 6.9 [< 6.8]	NA	NA	NA	NA	NA	< 7.8	< 7.6	NA	< 7.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4:2 FTS	- -	- -	ng/L	NA	NA	NA	< 6.9 Q [< 6.8 Q]	NA	NA	NA	NA	NA	< 7.8 Q	< 7.6 Q	NA	< 7.4 Q	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
6:2 FTS	- -	- -	ng/L	NA	NA	NA	< 6.9 Q [< 6.8 Q]	NA	NA	NA	NA	NA	< 7.8 Q	< 7.6 Q	NA	< 7.4 Q	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
8:2 FTS	- -	- -	ng/L	NA	NA	NA	< 6.9 [< 6.8 Q]	NA	NA	NA	NA	NA	< 7.8	< 7.6 Q	NA	< 7.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9Cl-PF3ONS (F-53B Major)	- -	- -	ng/L	NA	NA	NA	< 6.9 [< 6.8]	NA	NA	NA	NA	NA	< 7.8	< 7.6	NA	< 7.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ADONA	- -	- -	ng/L	NA	NA	NA	< 6.9 [< 6.8]	NA	NA	NA	NA	NA	< 7.8	< 7.6	NA	< 7.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexafluoropropylene oxide dimer acid (HFPO-DA) (GenX)	370	- -	ng/L	NA	NA	NA	< 6.9 [< 6.8]	NA	NA	NA	NA	NA	< 7.8	< 7.6	NA	< 7.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	- -	- -	ng/L	NA	NA	NA	< 6.9 [< 6.8]	NA	NA	NA	NA	NA	< 7.8	< 7.6 Q	NA	< 7.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA	- -	- -	ng/L	NA	NA	NA	< 6.9 [< 6.8]	NA	NA	NA	NA	NA	< 7.8	< 7.6	NA	< 7.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorobutanesulfonic acid (PFBS)	420	670,000	ng/L	NA	NA	NA	< 3.4 [< 3.4]	NA	NA	NA	NA	NA	< 3.9	**5**	NA	**3.0 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorobutanoic acid (PFBA)	- -	- -	ng/L	NA	NA	NA	**7.4 [7.9]**	NA	NA	NA	NA	NA	**1.2 J**	**12**	NA	**190**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorodecanesulfonic acid (PFDS)	- -	- -	ng/L	NA	NA	NA	< 3.4 [< 3.4]	NA	NA	NA	NA	NA	< 3.9	< 3.8	NA	< 3.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorodecanoic acid (PFDA)	- -	- -	ng/L	NA	NA	NA	< 3.4 [< 3.4]	NA	NA	NA	NA	NA	**0.68 J**	**2.0 J**	NA	**18**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorododecanoic acid (PFDoA)	- -	- -	ng/L	NA	NA	NA	< 3.4 [< 3.4]	NA	NA	NA	NA	NA	< 3.9	< 3.8	NA	< 3.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanesulfonic Acid (PFHpS)	- -	- -	ng/L	NA	NA	NA	< 3.4 [< 3.4]	NA	NA	NA	NA	NA	< 3.9	< 3.8	NA	< 3.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid (PFHpA)	- -	- -	ng/L	NA	NA	NA	< 3.4 [< 3.4]	NA	NA	NA	NA	NA	**0.58 J**	**10**	NA	**480**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid (PFHxS)	51	210	ng/L	NA	NA	NA	< 3.4 [< 3.4]	NA	NA	NA	NA	NA	< 3.9	**3.7 J**	NA	**2.8 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanoic acid (PFHxA)	400,000	- -	ng/L	NA	NA	NA	< 3.4 [< 3.4]	NA	NA	NA	NA	NA	**1.7 J**	**10**	NA	**600**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanesulfonic acid (PFNS)	- -	- -	ng/L	NA	NA	NA	< 3.4 [< 3.4]	NA	NA	NA	NA	NA	< 3.9	< 3.8	NA	< 3.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid (PFNA)	6.0	30	ng/L	NA	NA	NA	< 3.4 [< 3.4]	NA	NA	NA	NA	NA	< 3.9	**2.4 J**	NA	**81**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonamide (PFOSA)	- -	- -	ng/L	NA	NA	NA	< 3.4 [< 3.4]	NA	NA	NA	NA	NA	< 3.9	< 3.8	NA	< 3.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane sulfonic acid (PFOS)	16	12	ng/L	NA	NA	NA	< 3.4 [< 3.4]	NA	NA	NA	NA	NA	**1.9 J**	**24**	NA	**30**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic acid (PFOA)	8.0	170	ng/L	NA	NA	NA	< 3.4 [< 3.4]	NA	NA	NA	NA	NA	< 3.9	**19**	NA	**610**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoropentanesulfonic acid (PFPeS)	- -	- -	ng/L	NA	NA	NA	< 3.4 [< 3.4]	NA	NA	NA	NA	NA	< 3.9	< 3.8	NA	**0.93 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoropentanoic acid (PFPeA)	- -	- -	ng/L	NA	NA	NA	< 3.4 [< 3.4]	NA	NA	NA	NA	NA	**1.1 J**	**13**	NA	**580**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorotetradecanoic acid (PFTeA)	- -	- -	ng/L	NA	NA	NA	< 3.4 [< 3.4]	NA	NA	NA	NA	NA	< 3.9	< 3.8	NA	< 3.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorotridecanoic Acid (PFTriA)	- -	- -	ng/L	NA	NA	NA	< 3.4 [< 3.4]	NA	NA	NA	NA	NA	< 3.9	< 3.8	NA	< 3.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroundecanoic acid (PFUnA)	- -	- -	ng/L	NA	NA	NA	< 3.4 [< 3.4]	NA	NA	NA	NA	NA	< 3.9	< 3.8	NA	< 3.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals (EPA Method 200.8, Standard Methods 3500-Cr)																										
Arsenic	0.01	0.01	mg/L	NA	NA	NA	**0.011 [0.01]**	NA	NA	**0.044**	**0.007**	**0.003**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic (dissolved)	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	**0.006**	**0.006**	**0.003**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium III (trivalent)	0.1	0.16	mg/L	NA	NA	NA	< 0.005 [< 0.005]	NA	NA	< 0.005	< 0.005	< 0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium III (trivalent) (dissolved)	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	< 0.005	< 0.005	< 0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium VI (hexavalent)	0.1	0.011	mg/L	NA	NA	NA	< 0.01 [< 0.01]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1.0	0.02	mg/L	NA	NA	NA	< 0.005 [< 0.005]	NA	NA	< 0.005	< 0.005	< 0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper (dissolved)	1.0	0.02	mg/L	NA	NA	NA	NA	NA	NA	< 0.005	< 0.005	< 0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.004	0.044	mg/L	NA	NA	NA	< 0.003 [< 0.003]	NA	NA	< 0.003	< 0.003	< 0.003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead (dissolved)	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	< 0.003	< 0.003	< 0.003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	0.1	0.12	mg/L	NA	NA	NA	< 0.005 [< 0.005]	NA	NA	< 0.005	< 0.005	< 0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel (dissolved)	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	< 0.005	< 0.005	< 0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	0.0045	0.027	mg/L	NA	NA	NA	< 0.005 [< 0.005]	NA	NA	< 0.005	< 0.005	< 0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium (dissolved)	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	< 0.005	< 0.005	< 0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See notes on last page.

Table 2
Summary of Groundwater Analytical Results - 2024
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name: Sample Depth (ft. bgs):	Part 201 Residential Drinking Water	Part 201 Groundwater Surface Water Interface	Units	TW-14-02 02/12/24 TW-14-02 67-72	TW-14-02 05/15/24 TW-14-02 67-72	TW-14-02 08/20/24 TW-14-02_082024 67-72	TW-14-02 11/13/24 TW-14-02_111324 67-72	TW-15-11 02/13/24 TW-15-11 85-90	TW-15-11 05/17/24 TW-15-11 85-90	TW-15-11 08/19/24 TW-15-11_081924 85-90	TW-15-11 11/18/24 TW-15-11_111824 85-90	TW-15-12 02/13/24 TW-15-12 73-78	TW-15-12 05/16/24 TW-15-12 73-78	TW-15-12 11/14/24 TW-15-12_111424 73-78	TWP-90-03 11/14/24 TWP-90-03_111424	TWP-90-04 11/14/24 TWP-90-04_111424	TWP-90-05 11/14/24 TWP-90-05_111424	UNK-11 05/22/24 UNK-11 6.5-11.5	UNK-15 05/21/24 UNK-15 11-16	UNK-15 11/19/24 UNK-15_111924 11-16
Field Parameters																				
pH	6.5 to 8.5	6.5 to 9.0	s.u.	7.69	6.61	6.88	6.82	6.98	6.68	6.95	6.72	7.73	6.87	7.27	NR	NR	NR	10.22	7.96	7.82
Conductivity	- -	- -	mS/cm	4.887	3.916	3.98	3.409	2.577	2.728	3.3	3.481	2.926	2.821	2.092	NR	NR	NR	0.211	0.568	0.51
Turbidity	- -	- -	NTU	31.92	207.57	25.9	67	38	271	386	62.11	114.25	11.9	40	NR	NR	NR	30.11	3.51	2.88
Dissolved oxygen (DO)	- -	- -	mg/L	10.44	0.92	8.24	7.63	9.78	0.03	7.76	2.12	11.02	6.75	10.47	NR	NR	NR	2.25	0.12	2.16
Temperature	- -	- -	Deg C	8.7	15.1	15.1	12	11.2	17.9	21.8	15.3	6.4	16.7	12.6	NR	NR	NR	19.6	15.8	14.5
Oxidation reduction potential (ORP)	- -	- -	millivolts	-39.3	123.9	101.6	134.2	281	137.5	85.7	39.9	-60.2	190.4	139.5	NR	NR	NR	39.9	69.4	97.6
Volatile Organics (via EPA Method SW5030C/8260C)																				
1,1-Dichloroethane	880	740	µg/L	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	7.0	130	µg/L	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	200	89	µg/L	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1,2-Tetrachloroethane	77	- -	µg/L	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	5.0	330	µg/L	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	8.5	78	µg/L	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane (DBCP)	0.2	- -	µg/L	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7	µg/L	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	600	13	µg/L	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	5.0	360	µg/L	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	5.0	230	µg/L	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichlorobenzene	- -	- -	µg/L	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	42	- -	µg/L	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trimethylbenzene	- -	- -	µg/L	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	70	99	µg/L	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	63	17	µg/L	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	6.6	28	µg/L	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	72	45	µg/L	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	75	17	µg/L	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	7.2	280	µg/L	**4**	**161**	**16**	**21**	**115**	**197**	**24**	**26**	< 1	< 1	< 1	**0.12 J***	**0.35* [0.31*]**	**0.43***	NA	NA	NA
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200	µg/L	NA	< 25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	1,000	- -	µg/L	NA	< 50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	260	19	µg/L	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Phenylbutane (sec-Butylbenzene)	80	- -	µg/L	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	- -	µg/L	NA	< 50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	730	1,700	µg/L	NA	< 50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrylonitrile	2.6	2.0	µg/L	NA	< 2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	5.0	200	µg/L	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromobenzene	18	- -	µg/L	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	80	- -	µg/L	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	80	- -	µg/L	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane (Methyl bromide)	10	5.0	µg/L	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	800	- -	µg/L	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon tetrachloride	5.0	38	µg/L	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	100	25	µg/L	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobromomethane	- -	- -	µg/L	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	430	1,100	µg/L	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform (Trichloromethane)	80	350	µg/L	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane (Methyl chloride)	260	- -	µg/L	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	70	620	µg/L	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	- -	- -	µg/L	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cymene (p-Isopropyltoluene)	- -	- -	µg/L	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	80	- -	µg/L	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromomethane	80	- -	µg/L	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane (CFC-12)	1,700	- -	µg/L	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl ether	10	- -	µg/L	NA	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	74	18	µg/L	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	7.3	6.7	µg/L	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iodomethane	- -	- -	µg/L	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropyl benzene	800	28	µg/L	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert butyl ether (MTBE)	40	7,100	µg/L	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	5.0	1,500	µg/L	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	520	11	µg/L	NA	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Butylbenzene	80	- -	µg/L	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Propylbenzene	80	- -	µg/L	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	100	80	µg/L	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	80	- -	µg/L	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	5.0	60	µg/L	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrahydrofuran	95	11,000	µg/L	NA	< 90	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	790	270	µg/L	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	100	1,500	µg/L	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	- -	- -	µg/L	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,4-Dichloro-2-butene	- -	- -	µg/L	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	5.0	200	µg/L	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane (CFC-11)	2,600	- -	µg/L	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	2.0	13	µg/L	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m&p-Xylene	280	49	µg/L	NA	< 2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	280	49	µg/L	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	280	49	µg/L	NA	< 2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See notes on last page.

Table 2
Summary of Groundwater Analytical Results - 2024
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: Date Collected: Sample Name: Sample Depth (ft. bgs):	Part 201 Residential Drinking Water	Part 201 Groundwater Surface Water Interface	Units	TW-14-02 02/12/24 TW-14-02 67-72	TW-14-02 05/15/24 TW-14-02 67-72	TW-14-02 08/20/24 TW-14-02_082024 67-72	TW-14-02 11/13/24 TW-14-02_111324 67-72	TW-15-11 02/13/24 TW-15-11 85-90	TW-15-11 05/17/24 TW-15-11 85-90	TW-15-11 08/19/24 TW-15-11_081924 85-90	TW-15-11 11/18/24 TW-15-11_111824 85-90	TW-15-12 02/13/24 TW-15-12 73-78	TW-15-12 05/16/24 TW-15-12 73-78	TW-15-12 11/14/24 TW-15-12_111424 73-78	TWP-90-03 11/14/24 TWP-90-03_111424	TWP-90-04 11/14/24 TWP-90-04_111424	TWP-90-05 11/14/24 TWP-90-05_111424	UNK-11 05/22/24 UNK-11 6.5-11.5	UNK-15 05/21/24 UNK-15 11-16	UNK-15 11/19/24 UNK-15_111924 11-16
Semi-Volatile Organics (via EPA Method SW5030C/8270D)																				
1,2-Dichlorobenzene	600	13	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA
1,2-Diphenylhydrazine	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA
1,2,4-Trichlorobenzene	70	99	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA
1,3-Dichlorobenzene	6.6	28	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA
1,4-Dichlorobenzene	75	17	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA
2,4-Dichlorophenol	73	11	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 10	NA	NA
2,4-Dimethylphenol	370	380	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA
2,4-Dinitrophenol	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 25	NA	NA
2,4-Dinitrotoluene	7.7	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA
2,4,5-Trichlorophenol	730	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA
2,4,6-Trichlorophenol	120	5.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 4	NA	NA
2,6-Dinitrotoluene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA
2-Chloronaphthalene	1,800	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA
2-Chlorophenol	45	18	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 10	NA	NA
2-Methylnaphthalene	260	19	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA
2-Methylphenol	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 10	NA	NA
2-Nitroaniline	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 25	NA	NA
2-Nitrophenol	20	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA
3&4-Methylphenol	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 20	NA	NA
3,3'-Dichlorobenzidine	1.1	0.3	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA
3-Nitroaniline	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 25	NA	NA
4,6-Dinitro-2-methylphenol	20	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 20	NA	NA
4-Bromophenyl phenyl ether	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA
4-Chloro-3-methylphenol	150	7.4	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA
4-Chloroaniline	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 10	NA	NA
4-Chlorophenyl phenyl ether	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA
4-Nitroaniline	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 25	NA	NA
4-Nitrophenol	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 25	NA	NA
Acenaphthene	1,300	38	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA
Acenaphthylene	52	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA
Anthracene	43	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA
Benzo(a)anthracene	2.1	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA
Benzo(a)pyrene	5.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA
Benzo(b)fluoranthene	1.5	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA
Benzo(g,h,i)perylene	1.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA
Benzo(k)fluoranthene	1.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA
bis(2-Chloroethoxy)methane	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA
bis(2-Chloroethyl)ether	2.0	1.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA
bis(2-Ethylhexyl)phthalate (DEHP)	6.0	14	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA
Butyl benzylphthalate (BBP)	1,200	67	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA
Chrysene	1.6	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA
Dibenz(a,h)anthracene	2.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 2	NA	NA
Dibenzofuran	- -	4.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 4	NA	NA
Diethyl phthalate	5,500	110	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA
Dimethyl phthalate	73,000	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA
Di-n-butylphthalate (DBP)	880	9.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA
Di-n-octyl phthalate (DnOP)	130	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA
Fluoranthene	210	1.6	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1	NA	NA
Fluorene	880	12	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA
Hexachlorobenzene	1.0	0.2	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA
Hexachlorobutadiene	15	0.053	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 10	NA	NA
Hexachlorocyclopentadiene	50	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA
Hexachloroethane	7.3	6.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA
Indeno(1,2,3-cd)pyrene	2.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 2	NA	NA
Isophorone	770	1,300	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA
Naphthalene	520	11	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA
Nitrobenzene	3.4	180	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA
N-Nitrosodi-n-propylamine	5.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA
N-Nitrosodiphenylamine	270	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA
Pentachlorophenol	1.0	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA
Phenanthrene	52	2.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 2	NA	NA
Phenol	4,400	450	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA
Pyrene	140	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	NA	NA

Table 2
Summary of Groundwater Analytical Results - 2024
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Location ID: / Date Collected: / Sample Name: / Sample Depth (ft. bgs):	Part 201 Residential Drinking Water	Part 201 Groundwater Surface Water Interface	Units	TW-14-02 02/12/24 TW-14-02 67-72	TW-14-02 05/15/24 TW-14-02 67-72	TW-14-02 08/20/24 TW-14-02_082024 67-72	TW-14-02 11/13/24 TW-14-02_111324 67-72	TW-15-11 02/13/24 TW-15-11 85-90	TW-15-11 05/17/24 TW-15-11 85-90	TW-15-11 08/19/24 TW-15-11_081924 85-90	TW-15-11 11/18/24 TW-15-11_111824 85-90	TW-15-12 02/13/24 TW-15-12 73-78	TW-15-12 05/16/24 TW-15-12 73-78	TW-15-12 11/14/24 TW-15-12_111424 73-78	TWP-90-03 11/14/24 TWP-90-03_111424	TWP-90-04 11/14/24 TWP-90-04_111424	TWP-90-05 11/14/24 TWP-90-05_111424	UNK-11 05/22/24 UNK-11 6.5-11.5	UNK-15 05/21/24 UNK-15 11-16	UNK-15 11/19/24 UNK-15_111924 11-16
Per- and Polyfluoroalkyl Substances (PFAS) (via EPA Method 537 Modified)																				
11Cl-PF3OUdS (F-53B Minor)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 68	< 6.7
4:2 FTS	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 68 Q	< 6.7 Q
6:2 FTS	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 68 Q	< 6.7 Q
8:2 FTS	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 68	< 6.7 Q
9Cl-PF3ONS (F-53B Major)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 68	< 6.7
ADONA	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 68	< 6.7
Hexafluoropropylene oxide dimer acid (HFPO-DA) (GenX)	370	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 68	< 6.7
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 68	< 6.7
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 68	< 6.7
Perfluorobutanesulfonic acid (PFBS)	420	670,000	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 34	**1.7 J**
Perfluorobutanoic acid (PFBA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**14 J**	**18**
Perfluorodecanesulfonic acid (PFDS)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 34	< 3.3
Perfluorodecanoic acid (PFDA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 34	**4.6**
Perfluorododecanoic acid (PFDoA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 34	< 3.3
Perfluoroheptanesulfonic Acid (PFHpS)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**10 J**	**11**
Perfluoroheptanoic acid (PFHpA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**6.2 J**	**5.3**
Perfluorohexanesulfonic acid (PFHxS)	51	210	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**14 J**	**16**
Perfluorohexanoic acid (PFHxA)	400,000	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**9.1 J**	**6.1**
Perfluorononanesulfonic acid (PFNS)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 34	< 3.3
Perfluorononanoic acid (PFNA)	6.0	30	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**4.4 J**	**4.5**
Perfluorooctane Sulfonamide (PFOSA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 34	< 3.3
Perfluorooctane sulfonic acid (PFOS)	16	12	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1000**	**1300**
Perfluorooctanoic acid (PFOA)	8.0	170	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**26 J**	**21**
Perfluoropentanesulfonic acid (PFPeS)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 34	**1.9 J**
Perfluoropentanoic acid (PFPeA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**7.9 J**	**4.7**
Perfluorotetradecanoic acid (PFTeA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 34	< 3.3
Perfluorotridecanoic Acid (PFTriA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 34	< 3.3
Perfluoroundecanoic acid (PFUnA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 34	< 3.3
Metals (EPA Method 200.8, Standard Methods 3500-Cr)																				
Arsenic	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic (dissolved)	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium III (trivalent)	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium III (trivalent) (dissolved)	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium VI (hexavalent)	0.1	0.011	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1.0	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper (dissolved)	1.0	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead (dissolved)	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel (dissolved)	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium (dissolved)	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See notes on last page.

Table 2
Summary of Groundwater Analytical Results - 2024
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Data Flagging:
Bold font represents data where detections were noted above the laboratory method detection limit.
Gray shading represents result exceeding either or both the EGLE Part 201 Generic Cleanup Criteria and Screening Levels or the EGLE GSI Criteria (Updated October 12, 2023)

1. EGLE Part 201 Residential Drinking Water Criteria and Groundwater Surface Water Interface Criteria from the Generic Cleanup Criteria and Screening Levels (dated January 10, 2018) are used for comparison with all VOC and Inorganic data and revised criteria values (dated October 12, 2023) are used for comparison with all PFAS data.
2. 1,4-Dioxane is compared to a drinking water criteria of 7.2 µg/L per the EGLE (formerly MDEQ) Establishment of Cleanup Criteria for 1,4 -Dioxane: Emergency Rules dated October 27, 2016.
3. Duplicate analyses are presented in brackets next to the parent sample.

Abbreviations:
- - = Not listed in the EGLE Criteria Tables
* = Analyzed for low-level 1,4-Dioxane via EPA Method 522
Deg. C. = degrees Celsius
EGLE = Michigan Department of Environment, Great Lakes, and Energy
EPA = Environmental Protection Agency
ft. bgs = feet below ground surface
mg/L = milligrams per liter
NA = Not Analyzed
NR = Not Recorded
NTU = Nephelometric Turbidity Unit
s.u. = standard unit
ug/L = micrograms per liter
µS/cm = microSiemens per centimeter

Lab and Validation Data Qualifiers:
< = The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
J = The compound was positively identified, but the associated numerical value is an estimated concentration only.
Q = Surrogate failure
S = Surrogate recovery outside of control limits
X = Elevated reporting limit due to matrix interference.
Y = Elevated reporting limit due to high target concentration.
H = Out of hold time

Table 3
Summary of Soil Vapor Analytical Results - 2024
RACER Lansing
Lansing, Michigan

Analyte	Residential SSVIAC (µg/m³)	Location ID Date Sample ID	SVMP-20-01 8/20/2024 SVMP-20-01-082024	SVMP-20-01 8/20/2024 DUP-01-082024	SVMP-20-01 11/20/2024 SVMP-20-01_112024	SVMP-20-01 11/20/2024 DUP-01_112024
VOC via USEPA Method TO-15 (µg/m³)						
1,1,1-Trichloroethane	170,000 (SE) st		< 33	< 33	< 33	< 33
1,1,2,2-Tetrachloroethane	--		< 3.3	< 3.3	< 3.3	< 3.3
1,1,2-Trichloroethane	7 nc		< 6.5	< 6.5	< 6.5	< 6.5
1,1-Dichloroethane	530 ca		< 24	< 24	< 24	< 24
1,1-Dichloroethene	7,000 nc		< 24	< 24	< 24	< 24
1,2,4-Trichlorobenzene	--		< 22	< 22	< 22	< 22
1,2,4-Trimethylbenzene	2,100 nc		< 29	< 29	< 29	< 29
1,2-Dibromoethane (Ethylene dibromide)	1.4 ca		< 0.92	< 0.92	< 0.92	< 0.92
1,2-Dichlorobenzene	--		< 36	< 36	< 36	< 36
1,2-Dichloroethane	33 ca		< 4.9	< 4.9	< 4.9	< 4.9
1,2-Dichloropropane	--		< 28	< 28	< 28	< 28
1,3,5-Trimethylbenzene	2,100 nc		< 29	< 29	< 29	< 29
1,3-Butadiene	--		< 2.7	< 2.7	< 2.7	< 2.7
1,3-Dichlorobenzene	--		< 36	< 36	< 36	< 36
1,4-Dichlorobenzene	--		< 36	< 36	< 36	< 36
1,4-Dioxane	170 ca		< 22	< 22	< 22	< 22
2,2,4-Trimethylpentane	120,000 nc		< 56	< 56	< 56	< 56
2-Butanone (Methyl ethyl ketone) (MEK)	170,000 (SE) dev		< 35	< 35	< 35	< 35
2-Hexanone	--		< 49	< 49	< 49	< 49
2-Phenylbutane (sec-Butylbenzene)	--		< 6.6	< 6.6	< 6.6	< 6.6
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	--		< 49	< 49	< 49	< 49
Acetone	1,000,000 st		< 57	< 57	< 57	< 57
Benzene	110 ca		< 19	< 19	< 19	< 19
Benzyl chloride	--		< 6.2	< 6.2	< 6.2	< 6.2
Bromodichloromethane	--		< 8	< 8	< 8	< 8
Bromoform	--		< 62	< 62	< 62	< 62
Bromomethane (Methyl bromide)	--		< 23	< 23	< 23	< 23
Carbon disulfide	24,000 nc		< 37	< 37	< 37	< 37

Table 3
Summary of Soil Vapor Analytical Results - 2024
RACER Lansing
Lansing, Michigan

Analyte	Residential SSVIAC (µg/m^3)	Location ID Date Sample ID	SVMP-20-01 8/20/2024 SVMP-20-01-082024	SVMP-20-01 8/20/2024 DUP-01-082024	SVMP-20-01 11/20/2024 SVMP-20-01_112024	SVMP-20-01 11/20/2024 DUP-01_112024
VOC via USEPA Method TO-15 (µg/m^3)						
Carbon tetrachloride	--		< 7.5	< 7.5	< 7.5	< 7.5
Chlorobenzene	--		< 28	< 28	< 28	< 28
Chloroethane	--		< 16	< 16	< 16	< 16
Chloroform (Trichloromethane)	37 ca		< 5.9	< 5.9	< 5.9	< 5.9
Chloromethane (Methyl chloride)	--		< 12	< 12	< 12	< 12
cis-1,2-Dichloroethene	280 nc		< 24	< 24	< 24	< 24
cis-1,3-Dichloropropene	--		< 27	< 27	< 27	< 27
Cyclohexane	210,000 nc		< 41	< 41	< 41	< 41
Dibromochloromethane	--		< 4.1	< 4.1	< 4.1	< 4.1
Dichlorodifluoromethane (CFC-12)	--		< 30	< 30	< 30	< 30
Ethanol	630,000 (SE) st		< 23	< 23	< 23	< 23
Ethyl acetate	--		< 43	< 43	< 43	< 43
Ethylbenzene	340 ca		< 52	< 52	< 52	< 52
Hexachlorobutadiene	--		< 5.1	< 5.1	< 5.1 ICV-L-	< 5.1 ICV-L-
Hexane	24,000 nc		< 42	< 42	< 42	< 42
Isopropyl alcohol	--		< 29	< 29	< 29	< 29
m&p-Xylene	--		< 52	< 52	< 52	< 52
Methyl tert butyl ether (MTBE)	3,300 ca		< 22	< 22	< 22	< 22
Methylene chloride	--		< 42	< 42	< 42	< 42
Naphthalene	25 ca		< 19	< 19	< 19 L-	< 19 L-
N-Heptane	--		< 49 V+	< 49 V+	< 49	< 49
N-Propylbenzene	33,000 (SE) dev		< 29	< 29	< 29	< 29
o-Xylene	--		< 52	< 52	< 52	< 52
Pentane	--		< 18 V+	< 18 V+	< 18	< 18
Styrene	--		< 51	< 51	< 51	< 51
tert-Butylbenzene	--		< 6.6	< 6.6	< 6.6	< 6.6
Tetrachloroethene	1,400 (SE) st		< 41	< 41	< 41	< 41
Tetrahydrofuran	--		< 3.5 V+	< 3.5 V+	< 3.5	< 3.5

Table 3
Summary of Soil Vapor Analytical Results - 2024
RACER Lansing
Lansing, Michigan

Analyte	Residential SSVIAC (µg/m^3)	Location ID Date Sample ID SVMP-20-01 8/20/2024 SVMP-20-01-082024	SVMP-20-01 8/20/2024 DUP-01-082024	SVMP-20-01 11/20/2024 SVMP-20-01_112024	SVMP-20-01 11/20/2024 DUP-01_112024
VOC via USEPA Method TO-15 (µg/m^3)					
Toluene	170,000 (SE) st	< 23	< 23	< 23	< 23
trans-1,2-Dichloroethene	2,800 nc	< 24	< 24	< 24	< 24
trans-1,3-Dichloropropene	--	< 27	< 27	< 27	< 27
Trichloroethene	67 (SE) dev	< 1.6	< 1.6	< 1.6	< 1.6
Trichlorofluoromethane (CFC-11)	--	< 34	< 34	< 34	< 34
Trifluorotrichloroethane (Freon 113)	--	< 46	< 46	< 46	< 46
Vinyl acetate	--	< 42	< 42	< 42	< 42
Vinyl chloride	54 mut	< 15	< 15	< 15	< 15
Xylene (total)	7,600 nc	< 100	< 100	< 100	< 100

NOTES:
All results compared to Michigan Department of Environment, Great Lakes and Energy (EGLE) site-specific volatilization to indoor air criteria (SSVIAC), August 15, 2018.
Residential SSVIAC - Applies to a residential house with a basement, the depth to groundwater of 10 feet at the Site and soil type of sand.
Dup - represents duplicate sample analytical results
All analytical results are presented in micrograms per cubic meter (µg/m^3)
-- = No criteria requested for SSVIAC
< = Not Detected above laboratory detection limit
SVMP = Soil vapor monitoring point
SSVIAC = Site-specific volatilization to indoor air criteria (provided by EGLE)
ICV- = Recovery in the associated initial calibration verification sample exceeds the lower control limit. Results may be biased low.
L- = Recovery in the associated laboratory sample (LCS) exceeds the lower control limit. Results may be biased low.
V+ = Recovery in the associated continuing calibration verification sample (CCV) exceeds the upper control limit. Results may be biased high.
EGLE Footnotes:
(SE) = Site-specific criteria based on single event exposure; therefore, sampling methods should reflect shorter exposure scenarios.
ca = the criterion is based on carcinogenic health effects
dev = the criterion is based on developmental health effects
mut = the criterion is based on mutagenic cancer health effects
nc = the criterion is based on non-carcinogenic health effects
st = the criterion is based on short-term toxicity

Table 4
Summary of Plant 2 Storm Sewer Sampling Results
RACER Trust - Plant 2 Industrial Land, Lansing, Michigan

Location ID: Date Collected:	Units	MI Rule 57 SW (EGLE 2017)	P2-MH-2 2/8/2024	P2-MH-2 4/10/2024	P2-MH-2 7/2/2024	P2-MH-2 10/3/2024	P2-MH-W 2/8/2024	P2-MH-W 4/10/2024	P2-MH-W 7/2/2024	P2-MH-W 10/3/2024
Results										
Perfluorooctanesulfonic acid (PFOS)	ng/L	12	10.0	8.4	19.0	14.8	< 4.2	< 4.1	< 3.9	< 1.9
Perfluorooctanoic acid (PFOA)	ng/L	170	11.0	10.0	16.0	14.5	< 4.2	< 4.1	2.2 J	< 2.1
Perfluorobutanesulfonic acid (PFBS)	ng/L	670,000	< 4.6	2.9 J	< 4.1	6.0	1.0 J	< 4.1	< 3.9	< 1.8
Perfluorohexanesulfonic acid (PFHxS)	ng/L	210	3.1 J	3.2 J	4.2	3.6	1.8 J	1.3 J	1.7 J	< 1.9
Perfluorononanoic acid (PFNA)	ng/L	30	1.3 J	1.2 J	2.5 J	< 2.0	< 4.2	< 4.1	< 3.9	< 2.1
Other PFAS	ng/L	NC	21.2	21.7	36.2	36.3	4.7	3.5	3.6	4.3

Notes:

Shaded — Exceeds Rule 57 Human Non-Cancer Screening Value for Surface Water from a Non-Drinking Water Source for PFOS or PFOA

NC = No criteria
ng/L = Nanograms per liter
PFAS = Per- and polyfluoroalkyl substances
[ ] Indicates duplicate sample
J = Indicates an estimated value below laboratory reporting limit
< = The compound was analyzed for but not detected.
All samples analyzed using USEPA Method 537M, Michigan List of 28

Table 5
Summary of Plant 3 Storm Sewer Sampling Results
RACER Trust - Plant 3 Industrial Land, Lansing, Michigan

Location ID: Date Collected:	Units	MI Rule 57 SW (EGLE 2017)	P3-MH-284 2/8/2024	P3-MH-284 4/10/2024	P3-MH-284 7/2/2024	P3-MH-284 10/3/2024
Results						
Perfluorooctanesulfonic acid (PFOS)	ng/L	12	6.2	2.6 J	8.8	26.4
Perfluorooctanoic acid (PFOA)	ng/L	170	< 4.1	< 4.2	1.7 J	< 3.9
Perfluorobutanesulfonic acid (PFBS)	ng/L	670,000	2.8 J	1.7 J	< 4.0	< 3.4
Perfluorohexanesulfonic acid (PFHxS)	ng/L	210	< 4.1	< 4.2	1.5 J	< 3.5
Perfluorononanoic acid (PFNA)	ng/L	30	< 4.1	< 4.2	< 4.0	< 3.9
Other PFAS	ng/L	NC	12.8	0.0	2.8	0.0

Notes:

Shaded — Exceeds Rule 57 Human Non-Cancer Screening Value for Surface Water from a Non-Drinking Water Source for PFOS or PFOA

NC = No criteria

ng/L = Nanograms per liter

PFAS = Per- and polyfluoroalkyl substances

J = Indicates an estimated value below laboratory reporting limit

< = The compound was analyzed for but not detected.

All samples analyzed using USEPA Method 537M, Michigan List of 28

Table 6
Summary of Plant 6 Storm Sewer Sampling Results
RACER Trust - Plant 6 Industrial Land, Lansing, Michigan

Location ID: Date Collected:	Units	MI Rule 57 SW (EGLE 2017)	MichAve-MH-3 2/8/2024	MichAve-MH-3 4/10/2024	MichAve-MH-3 7/2/2024	MichAve-MH-3 10/3/2024	Verlinden-MH-5 2/8/2024	Verlinden-MH-5 4/10/2024	Verlinden-MH-5 7/2/2024	Verlinden-MH-5 10/3/2024	Osborn-MH-1 2/8/2024	Osborn-MH-1 4/10/2024	Osborn-MH-1 7/2/2024	Osborn-MH-1 10/3/2024
Results														
Perfluorooctanesulfonic acid (PFOS)	ng/L	12	1.3 J	2.5 J	4.8	4.7	8.6	6.7	12.0	11.6	16.0 [18.0]	17.0 [15.0]	16.0 [20.0]	12.6 [14.9]
Perfluorooctanoic acid (PFOA)	ng/L	170	2.6 J	5.1	6.0	8.0	27.0	27.0	29.0	39.9	24.0 [24.0]	28.0 [28.0]	30.0 [29.0]	23.2 [23.6]
Perfluorobutanesulfonic acid (PFBS)	ng/L	670,000	2.4 J	3.2 J	< 4.2	3.1	3.7 J	4.3	< 3.9	4.3	< 4.3 [2.4 J]	1.7 J [1.2 J]	2.2 J [1.7 J]	< 1.9 [< 1.8]
Perfluorohexanesulfonic acid (PFHxS)	ng/L	210	1.9 J	3.5 J	7.0	5.0	1.8 J	1.9 J	1.9 J	2.2	2.5 J [2.8 J]	2.0 J [2.2 J]	2.1 J [2.8 J]	< 1.9 [< 1.9]
Perfluorononanoic acid (PFNA)	ng/L	30	< 4.2	< 4.2	< 4.2	< 2.1	2.7 J	2.0 J	3.5 J	3.6	4.5 [4.0]	5.4 [4.5]	5.5 [5.7]	2.7 [3.2]
Other PFAS	ng/L	NC	10.5	13.8	25.1	39.8	63.0	55.3	80.2	104.4	67.1 [65.9]	62.7 [63.0]	67.1 [68.4]	53.5 [52.2]

Notes:

Shaded — Exceeds Rule 57 Human Non-Cancer Screening Value for Surface Water from a Non-Drinking Water Source for PFOS or PFOA

NC = No criteria
ng/L = Nanograms per liter
PFAS = Per- and polyfluoroalkyl substances
[ ] Indicates duplicate sample
J = Indicates an estimated value below laboratory reporting limit
< = The compound was analyzed for but not detected.
All samples analyzed using USEPA Method 537M, Michigan List of 28

Table 7
Summary of LNAPL Thickness - 2024
RACER Trust Plants 2 and 3
Lansing, Michigan

Well ID	Date Collected	Reference Elevation - TOC (feet amsl)	Ground Surface Elevation (feet amsl)	Total Well Depth (feet below TOC)	Depth to Water (feet below TOC)	Depth to LNAPL (feet below TOC)	Calculated Thickness NAPL (feet)	Groundwater Elevation (feet amsl)	Corrected Groundwater Elevation (feet amsl)
Plant 2									
LMW-12-01	5/21/2024	864.91	862.14	NM	4.54	NP	NP	860.37	860.37
LMW-12-01	11/12/2024	864.91	862.14	14.77	5.54	5.53	0.01	859.37	859.38
LMW-12-03D	5/21/2024	864.99	862.08	NM	19.73	3.59	16.14	845.26	859.78
LMW-12-03D	11/13/2024	Abandoned							
LMW-12-03S	5/21/2024	864.93	862.06	NM	3.76	3.71	0.05	861.17	861.21
LMW-12-03S	11/12/2024	864.93	862.06	11.75	4.12	3.88	0.24	860.81	861.03
LMW-12-05	5/21/2024	865.03	862.17	NM	6.80	5.86	0.94	858.23	859.08
LMW-12-05	11/13/2024	Abandoned							
LMW-12-07	5/21/2024	864.13	861.50	NM	2.83	NP	NP	861.30	861.30
LMW-12-07	11/12/2024	864.13	861.50	11.95	2.74	2.73	0.01	861.39	861.40
LMW-12-08	5/21/2024	864.40	861.56	NM	4.40	2.93	1.47	860.00	861.32
LMW-12-08	11/13/2024	Abandoned							
LMW-14-12D	5/21/2024	864.59	862.11	NM	24.95	3.54	21.41	839.64	858.90
LMW-14-12D	11/13/2024	Abandoned							
LMW-14-13D	5/21/2024	865.03	862.06	NM	4.81	NP	NP	860.22	860.22
LMW-14-13D	11/12/2024	865.03	862.06	24.34	5.55	5.54	0.01	859.48	859.49
LMW-14-15D	5/21/2024	865.11	861.66	NM	22.65	4.35	18.30	842.46	858.92
LMW-14-15D	11/13/2024	Abandoned							
LMW-15-16D	5/21/2024	865.20	862.24	NM	23.25	4.88	18.37	841.95	858.47
LMW-15-16D	11/13/2024	Abandoned							
P2-SB-37	5/21/2024	865.90	861.90	NM	5.42	4.24	1.18	860.48	861.54
P2-SB-37	11/13/2024	Abandoned							
PMW-01	5/21/2024	860.85	861.33	NM	0.47	0.35	0.12	860.38	860.49
PMW-01	11/13/2024	Abandoned							
PMW-02	5/21/2024	860.94	861.33	NM	NM	NM	NM	NM	NM
PMW-02	11/12/2024	860.94	861.33	NM	NM	NM	NM	NM	NM
Plant 3									
LMW-12-09	5/21/2024	863.22	860.40	NM	3.31	3.29	0.02	859.91	859.93
LMW-12-09	11/12/2024	863.22	860.40	10.77	3.75	3.74	0.01	859.47	859.48
LMW-12-10	5/21/2024	866.82	863.60	NM	18.90	11.44	7.46	847.92	854.63
LMW-12-10	11/12/2024	866.82	863.60	21.41	19.11	11.34	11.34	847.71	854.70

Notes:
1. Where LNAPL was observed, groundwater elevations have been corrected using a measured LNAPL density of 0.8995 gram per milliliter.
2. PMW-02 could not be gauged on 5/21/2024 and 11/12/2024 as planned due to the flushmount being under standing water.

Abbreviations:
LNAPL = light nonaqueous phase liquid
amsl = above mean sea level
NAPL = nonaqueous phase liquid
NM = not measured
NP = no product
TOC = top of casing
RACER = Revitalizing Auto Communities Environmental Response

Table 8
Summary of Groundwater Elevations - 2024
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Well ID	Date Collected	Screened Interval Top (feet bgs)	Screened Interval Bottom (feet bgs)	Reference Elevation - TOC (feet amsl)	Ground Surface Elevation (feet amsl)	Total Well Depth (feet below TOC)	Corrected Depth to Water (feet below TOC)	Corrected Groundwater Elevation (feet amsl)
Plant 2								
MW-01(2)	5/13/2024	10.0	20.0	875.79	876.10	15.98	6.90	868.89
MW-01(2)	11/11/2024	10.0	20.0	875.79	876.10	19.69	11.29	864.50
MW-12-01	5/13/2024	87.0	110.0	867.94	865.46	111.05	79.44	788.50
MW-12-01	11/11/2024	87.0	110.0	867.94	865.46	112.48	79.42	788.52
MW-12-02	5/13/2024	87.0	110.0	853.91	851.88	108.88	68.28	785.63
MW-12-02	11/12/2024	87.0	110.0	853.91	851.88	112.03	69.24	784.67
MW-12-05R	5/13/2024	100.0	112.0	861.80	862.30	109.31	74.31	787.49
MW-12-05R	11/11/2024	100.0	112.0	861.80	862.30	111.50	74.48	787.32
MW-12-06	5/13/2024	80.6	99.5	864.64	861.69	103.55	73.78	790.86
MW-12-06	11/11/2024	80.6	99.5	864.64	861.69	102.45	73.37	791.27
MW-12-07	5/13/2024	10.0	15.0	872.11	869.21	17.73	6.92	865.19
MW-12-07	11/11/2024	10.0	15.0	872.11	869.21	17.90	10.93	861.18
MW-12-08	5/13/2024	19.0	24.0	864.68	861.50	27.14	3.23	861.45
MW-12-08	11/11/2024	19.0	24.0	864.68	861.50	27.18	3.60	861.08
MW-12-09	5/13/2024	14.0	19.0	863.54	860.63	21.62	11.77	851.77
MW-12-09	11/11/2024	14.0	19.0	863.54	860.63	21.91	13.76	849.78
MW-12-18	5/13/2024	28.0	33.0	866.43	864.19	34.78	21.55	844.88
MW-12-18	11/11/2024	28.0	33.0	866.43	864.19	35.24	22.95	843.48
MW-13-43	5/13/2024	72.0	77.0	863.82	860.97	77.15	67.86	795.96
MW-13-43	11/11/2024	72.0	77.0	863.82	860.97	79.85	66.01	797.81
MW-13-44	5/13/2024	96.0	115.0	864.24	861.03	118.95	76.60	787.64
MW-13-44	11/11/2024	96.0	115.0	864.24	861.03	118.21	78.96	785.28
MW-13-45	5/13/2024	72.0	77.0	863.80	861.54	78.31	66.66	797.14
MW-13-45	11/11/2024	72.0	77.0	863.80	861.54	79.26	65.19	798.61
MW-13-51	5/13/2024	77.0	87.0	875.34	872.51	89.80	72.48	802.86
MW-13-51	11/11/2024	77.0	87.0	875.34	872.51	89.83	72.24	803.10
MW-14-54	5/13/2024	14.0	19.0	865.21	862.21	19.15	7.37	857.84
MW-14-54	11/11/2024	14.0	19.0	865.21	862.21	22.00	12.47	852.74
MW-14-55	5/13/2024	13.0	18.0	864.17	861.73	20.09	14.09	850.08
MW-14-55	11/11/2024	13.0	18.0	864.17	861.73	20.44	16.77	847.40
MW-14-56	5/13/2024	71.0	76.0	860.21	860.62	75.70	65.70	794.51
MW-14-56	11/11/2024	71.0	76.0	860.21	860.62	75.59	65.44	794.77
MW-14-57	5/13/2024	15.0	20.0	863.97	861.10	21.39	9.34	854.63
MW-14-57	11/11/2024	15.0	20.0	863.97	861.10	22.87	12.90	851.07
MW-14-58R	5/13/2024	22.0	27.0	862.93	860.09	29.60	12.45	850.48
MW-14-58R	11/11/2024	22.0	27.0	862.93	860.09	29.84	13.94	848.99
MW-14-59	5/13/2024	12.0	17.0	865.13	861.63	19.34	4.71	860.42
MW-14-59	11/11/2024	12.0	17.0	865.13	861.63	20.49	5.40	859.73
MW-14-60	5/13/2024	15.0	20.0	864.65	861.70	22.47	8.65	856.00
MW-14-60	11/11/2024	15.0	20.0	864.65	861.70	22.95	9.82	854.83
MW-14-61	5/13/2024	70.0	75.0	865.51	862.30	77.73	67.90	797.61
MW-14-61	11/12/2024	70.0	75.0	865.51	862.30	NM	NM	NM
MW-14-62	5/13/2024	12.0	17.0	865.17	862.25	19.65	3.42	861.75
MW-14-62	11/11/2024	12.0	17.0	865.17	862.25	19.92	3.61	861.56
MW-14-63	5/13/2024	68.0	73.0	854.64	851.68	76.70	67.72	786.92
MW-14-63	11/12/2024	68.0	73.0	854.64	851.68	75.96	68.21	786.43
MW-15-72	5/13/2024	63.0	68.0	865.09	862.35	70.27	56.86	808.23
MW-15-72	11/11/2024	63.0	68.0	865.09	862.35	70.74	56.09	809.00

Table 8
Summary of Groundwater Elevations - 2024
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Well ID	Date Collected	Screened Interval Top (feet bgs)	Screened Interval Bottom (feet bgs)	Reference Elevation - TOC (feet amsl)	Ground Surface Elevation (feet amsl)	Total Well Depth (feet below TOC)	Corrected Depth to Water (feet below TOC)	Corrected Groundwater Elevation (feet amsl)
MW-15-73	5/13/2024	78.0	83.0	861.56	859.12	80.95	74.23	787.33
MW-15-73	11/11/2024	78.0	83.0	861.56	859.12	85.44	72.15	789.41
MW-16-74	5/13/2024	66.0	71.0	864.81	862.10	73.69	66.44	798.37
MW-16-74	11/11/2024	66.0	71.0	864.81	862.10	73.71	65.80	799.01
MW-16-75	5/13/2024	66.0	71.0	864.87	862.13	74.08	62.08	802.79
MW-16-75	11/11/2024	66.0	71.0	864.87	862.13	73.74	61.47	803.40
MW-16-76	5/13/2024	70.0	75.0	867.76	865.12	80.00	65.58	802.18
MW-16-76	11/11/2024	70.0	75.0	867.76	865.12	77.64	65.22	802.54
MW-16-77	5/13/2024	66.0	71.0	866.17	863.42	73.98	61.23	804.94
MW-16-77	11/11/2024	66.0	71.0	866.17	863.42	73.75	60.69	805.48
MW-16-78	5/13/2024	68.0	73.0	864.98	862.09	76.18	65.21	799.77
MW-16-78	11/11/2024	68.0	73.0	864.98	862.09	75.89	64.21	800.77
MW-16-80	5/13/2024	68.0	73.0	853.03	853.41	73.30	66.06	786.97
MW-16-80	11/11/2024	68.0	73.0	853.03	853.41	72.62	64.75	788.28
MW-16-81	5/13/2024	70.0	75.0	864.68	862.04	77.23	63.92	800.76
MW-16-81	11/11/2024	70.0	75.0	864.68	862.04	77.64	64.41	800.27
MW-16-82	5/14/2024	70.0	75.0	864.79	862.10	77.14	68.17	796.62
MW-16-82	11/11/2024	70.0	75.0	864.79	862.10	77.69	65.39	799.40
MW-16-83	5/13/2024	71.0	76.0	862.97	860.17	79.06	74.50	788.47
MW-16-83	11/11/2024	71.0	76.0	862.97	860.17	78.80	73.15	789.82
MW-16-84	5/13/2024	72.0	77.0	864.09	861.81	81.15	69.92	794.17
MW-16-84	11/11/2024	72.0	77.0	864.09	861.81	79.29	69.39	794.70
MW-16-85	5/13/2024	74.0	79.0	864.77	861.87	81.81	71.28	793.49
MW-16-85	11/11/2024	74.0	79.0	864.77	861.87	81.90	70.49	794.28
MW-17-86	5/13/2024	73.0	78.0	864.55	861.92	81.43	66.91	797.64
MW-17-86	11/11/2024	73.0	78.0	864.55	861.92	80.63	65.96	798.59
MW-17-87	5/13/2024	100.0	112.0	862.82	860.44	113.65	76.57	786.25
MW-17-87	11/11/2024	100.0	112.0	862.82	860.44	114.38	76.78	786.04
MW-19-115	5/13/2024	72.5	77.5	865.04	862.19	80.35	58.66	806.38
MW-19-115	11/11/2024	72.5	77.5	865.04	862.19	80.35	58.05	806.99
MW-19-116	5/13/2024	65.0	70.0	865.12	862.17	73.57	56.37	808.75
MW-19-116	11/11/2024	65.0	70.0	865.12	862.17	72.95	55.75	809.37
MW-19-117	5/13/2024	54.0	59.0	865.10	862.15	62.84	59.23	805.87
MW-19-117	11/11/2024	54.0	59.0	865.10	862.15	61.95	58.71	806.39
MW-19-118D	5/13/2024	175.0	190.0	862.78	859.80	192.95	77.82	784.96
MW-19-118D	11/11/2024	175.0	190.0	862.78	859.80	192.98	78.18	784.60
MW-19-118S	5/13/2024	145.0	160.0	862.81	859.80	162.73	77.81	785.00
MW-19-118S	11/11/2024	145.0	160.0	862.81	859.80	163.01	78.22	784.59
MW-19-120	5/13/2024	66.0	71.0	864.73	862.13	73.99	67.03	797.70
MW-19-120	11/11/2024	66.0	71.0	864.73	862.13	73.60	66.10	798.63
MW-19-121	5/13/2024	66.0	71.0	864.55	862.19	73.53	66.31	798.24
MW-19-121	11/11/2024	66.0	71.0	864.55	862.19	73.36	66.35	798.20
MW-19-122	5/13/2024	59.0	64.0	865.02	862.15	66.75	64.46	800.56
MW-19-122	11/11/2024	59.0	64.0	865.02	862.15	66.87	65.21	799.81
MW-19-123	5/13/2024	66.0	71.0	864.45	862.04	73.90	65.59	798.86
MW-19-123	11/11/2024	66.0	71.0	864.45	862.04	73.41	63.20	801.25
MW-19-124	5/13/2024	65.0	70.0	864.53	862.22	72.20	66.48	798.05
MW-19-124	11/11/2024	65.0	70.0	864.53	862.22	72.31	64.95	799.58
MW-19-125	5/13/2024	100.0	115.0	865.11	862.11	102.26	78.32	786.79

Table 8
Summary of Groundwater Elevations - 2024
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Well ID	Date Collected	Screened Interval Top (feet bgs)	Screened Interval Bottom (feet bgs)	Reference Elevation - TOC (feet amsl)	Ground Surface Elevation (feet amsl)	Total Well Depth (feet below TOC)	Corrected Depth to Water (feet below TOC)	Corrected Groundwater Elevation (feet amsl)
MW-19-125	11/11/2024	100.0	115.0	865.11	862.11	117.99	77.67	787.44
MW-20-126	5/13/2024	69.0	74.0	861.89	859.50	75.46	73.02	788.87
MW-20-126	11/11/2024	69.0	74.0	861.89	859.50	76.39	66.25	795.64
MW-20-127	5/13/2024	72.0	77.0	862.58	861.30	78.66	67.72	794.86
MW-20-127	11/11/2024	72.0	77.0	862.58	861.30	78.28	66.18	796.40
MW-20-128	5/13/2024	65.0	70.0	863.73	861.40	69.15	65.91	797.82
MW-20-128	11/11/2024	65.0	70.0	863.73	861.40	72.33	66.40	797.33
MW-20-129	5/13/2024	64.0	69.0	864.91	862.20	71.00	61.45	803.46
MW-20-129	11/11/2024	64.0	69.0	864.91	862.20	71.71	60.22	804.69
MW-20-130	5/13/2024	63.0	68.0	863.98	862.20	69.78	67.14	796.84
MW-20-130	11/11/2024	63.0	68.0	863.98	862.20	69.78	67.16	796.82
MW-21-139	5/13/2024	7.0	12.0	865.00	862.17	15.38	3.00	862.00
MW-21-139	11/11/2024	7.0	12.0	865.00	862.17	14.83	3.07	861.93
MW-21-140	5/13/2024	67.0	72.0	866.06	862.76	75.96	68.64	797.42
MW-21-140	11/11/2024	67.0	72.0	866.06	862.76	75.30	68.45	797.61
MW-21-142	5/13/2024	71.5	76.5	853.70	850.79	78.80	66.74	786.96
MW-21-142	11/12/2024	71.5	76.5	853.70	850.79	79.41	67.30	786.40
MW-22-153	5/13/2024	25.0	30.0	860.43	859.44	31.15	9.94	850.49
MW-22-153	11/11/2024	25.0	30.0	860.43	859.44	30.99	11.41	849.02
MW-22-155	5/13/2024	25.5	30.5	861.58	858.99	31.44	11.17	850.41
MW-22-155	11/11/2024	25.5	30.5	861.58	858.99	33.09	12.68	848.90
MW-22-156	5/13/2024	23.0	28.0	863.07	860.13	31.04	12.46	850.61
MW-22-156	11/11/2024	23.0	28.0	863.07	860.13	30.94	13.86	849.21
MW-22-157	5/13/2024	24.0	29.0	852.38	853.06	27.62	1.80	850.58
MW-22-157	11/11/2024	24.0	29.0	852.38	853.06	28.32	3.57	848.81
MW-23-161	5/13/2024	20.0	25.0	858.48	856.00	27.58	9.85	848.63
MW-23-161	11/11/2024	20.0	25.0	858.48	856.00	27.48	11.55	846.93
MW-23-162	5/13/2024	29.0	34.0	861.95	859.41	36.64	13.32	848.63
MW-23-162	11/11/2024	29.0	34.0	861.95	859.41	36.54	15.20	846.75
MW-23-163	5/13/2024	20.0	25.0	862.61	860.31	27.23	12.85	849.76
MW-23-163	11/11/2024	20.0	25.0	862.61	860.31	27.30	14.61	848.00
P2-MW-02	5/13/2024	31.0	41.0	872.24	872.70	40.21	36.19	836.05
P2-MW-02	11/11/2024	31.0	41.0	872.24	872.70	40.54	36.01	836.23
P2-MW-03	5/13/2024	27.0	32.0	854.18	854.66	27.18	7.85	846.33
P2-MW-03	11/11/2024	27.0	32.0	854.18	854.66	31.52	9.29	844.89
P2-MW-04	5/13/2024	26.0	36.0	866.12	862.75	39.60	11.05	855.07
P2-MW-04	11/11/2024	26.0	36.0	866.12	862.75	39.37	12.03	854.09
P2-SB-03	5/13/2024	14.0	19.0	863.89	861.03	22.11	13.10	850.79
P2-SB-03	11/11/2024	14.0	19.0	863.89	861.03	21.87	15.02	848.87
P2-SB-06	5/13/2024	24.0	29.0	866.06	862.09	33.59	15.60	850.46
P2-SB-06	11/11/2024	24.0	29.0	866.06	862.09	32.97	16.40	849.66
P2-SB-20	5/13/2024	8.0	13.0	864.46	861.12	16.19	7.81	856.65
P2-SB-20	11/11/2024	8.0	13.0	864.46	861.12	16.34	9.63	854.83
PMW-02	5/13/2024	2.6	7.6	860.94	861.33	NM	NM	NM
PMW-02	11/12/2024	2.6	7.6	860.94	861.33	NM	NM	NM
PW-14-01	5/13/2024	71.6	76.8	864.97	862.38	81.85	68.20	796.77
PW-14-01	11/11/2024	71.6	76.8	864.97	862.38	79.39	65.35	799.62
PW-14-02	5/13/2024	75.0	80.0	863.87	860.93	85.15	67.15	796.72
PW-14-02	11/11/2024	75.0	80.0	863.87	860.93	82.94	66.42	797.45

Table 8
Summary of Groundwater Elevations - 2024
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Well ID	Date Collected	Screened Interval Top (feet bgs)	Screened Interval Bottom (feet bgs)	Reference Elevation - TOC (feet amsl)	Ground Surface Elevation (feet amsl)	Total Well Depth (feet below TOC)	Corrected Depth to Water (feet below TOC)	Corrected Groundwater Elevation (feet amsl)
TW-14-02	5/13/2024	67.0	72.0	865.01	862.13	71.55	61.79	803.22
TW-14-02	11/11/2024	67.0	72.0	865.01	862.13	74.88	63.96	801.05
TW-15-12	5/13/2024	73.0	78.0	860.88	861.23	77.03	65.52	795.36
TW-15-12	11/11/2024	73.0	78.0	860.88	861.23	77.65	63.43	797.45
Plant 3								
CH-14-RO	5/13/2024	7.0	12.0	866.47	863.71	14	6.16	860.31
CH-14-RO	11/11/2024	7.0	12.0	866.47	863.71	14.82	7.74	858.73
MW-02-01(3)	5/13/2024	59.0	69.0	865.54	863.35	72.10	50.36	815.18
MW-02-01(3)	11/11/2024	59.0	69.0	865.54	863.35	72.10	50.22	815.32
MW-02-02(3)	5/13/2024	74.0	84.0	862.70	863.11	83.65	61.63	801.07
MW-02-02(3)	11/11/2024	74.0	84.0	862.70	863.11	83.65	66.97	795.73
MW-02-03(3)	5/13/2024	79.0	89.0	859.63	859.90	NM	NM	NM
MW-02-03(3)	11/11/2024	79.0	89.0	859.63	859.90	NM	NM	NM
MW-02-04(3)	5/13/2024	76.0	86.0	859.41	859.96	83.40	60.73	798.68
MW-02-04(3)	11/11/2024	76.0	86.0	859.41	859.96	84.40	61.37	798.04
MW-04-01(3)	5/13/2024	95.0	105.0	862.61	862.93	104.46	49.41	813.20
MW-04-02(3)	5/13/2024	126.0	136.0	861.09	861.26	132.30	63.93	797.16
MW-04-02(3)	11/11/2024	126.0	136.0	861.09	861.26	132.30	64.15	796.94
MW-04-03(3)	5/13/2024	80.0	90.0	860.72	861.00	87.35	62.70	798.02
MW-04-03(3)	11/11/2024	80.0	90.0	860.72	861.00	87.35	62.95	797.77
MW-04-04(3)	5/13/2024	72.0	82.0	855.72	856.11	81.50	57.13	798.59
MW-04-04(3)	11/11/2024	72.0	82.0	855.72	856.11	81.50	57.52	798.20
MW-05(3)	5/13/2024	10.0	15.0	863.44	859.80	19.54	3.98	859.46
MW-05(3)	11/11/2024	10.0	15.0	863.44	859.80	18.64	4.20	859.24
MW-12-04	5/13/2024	77.0	100.0	844.08	844.26	99.90	49.11	794.97
MW-12-04	11/11/2024	77.0	100.0	844.08	844.26	99.90	49.18	794.90
MW-12-20	5/13/2024	75.0	80.0	864.20	861.45	79.48	66.43	797.77
MW-12-20	11/11/2024	75.0	80.0	864.20	861.45	79.45	66.48	797.72
MW-12-21	5/13/2024	70.0	75.0	864.50	861.45	78.01	65.82	798.68
MW-12-21	11/11/2024	70.0	75.0	864.50	861.45	78.10	65.04	799.46
MW-13-22	5/13/2024	89.0	94.0	864.37	861.50	96.1	69.02	795.35
MW-13-22	11/11/2024	89.0	94.0	864.37	861.50	96.15	69.51	794.86
MW-13-23	5/13/2024	69.0	74.0	864.31	861.45	77.13	66.62	797.69
MW-13-23	11/11/2024	69.0	74.0	864.31	861.45	77.50	64.89	799.42
MW-13-24	5/13/2024	69.0	74.0	864.35	861.48	77.33	65.56	798.79
MW-13-24	11/11/2024	69.0	74.0	864.35	861.48	77.30	65.15	799.20
MW-13-25	5/13/2024	67.0	72.0	863.77	860.49	74.98	65.46	798.31
MW-13-25	11/11/2024	67.0	72.0	863.77	860.49	75.00	65.01	798.76
MW-13-26	5/13/2024	72.0	77.0	863.95	861.67	79.17	65.05	798.90
MW-13-26	11/11/2024	72.0	77.0	863.95	861.67	79.20	64.87	799.08
MW-13-27	5/13/2024	67.0	72.0	864.50	861.54	75.87	65.80	798.70
MW-13-27	11/11/2024	67.0	72.0	864.50	861.54	75.70	65.23	799.27
MW-13-28	5/13/2024	99.0	115.5	864.42	861.61	118.75	69.75	794.67
MW-13-28	11/11/2024	99.0	115.5	864.42	861.61	114.75	70.52	793.90
MW-13-29	5/13/2024	68.0	73.0	862.81	859.81	76.31	65.02	797.79
MW-13-29	11/11/2024	68.0	73.0	862.81	859.81	76.30	39.99	822.82
MW-13-30	5/13/2024	72.0	77.0	864.53	861.66	79.77	67.04	797.49
MW-13-30	11/11/2024	72.0	77.0	864.53	861.66	79.80	66.96	797.57
MW-13-32	5/13/2024	5.0	10.0	860.11	857.32	12.65	6.03	854.08

Table 8
Summary of Groundwater Elevations - 2024
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Well ID	Date Collected	Screened Interval Top (feet bgs)	Screened Interval Bottom (feet bgs)	Reference Elevation - TOC (feet amsl)	Ground Surface Elevation (feet amsl)	Total Well Depth (feet below TOC)	Corrected Depth to Water (feet below TOC)	Corrected Groundwater Elevation (feet amsl)
MW-13-32	11/11/2024	5.0	10.0	860.11	857.32	12.65	8.55	851.56
MW-13-34	5/13/2024	74.0	79.0	853.92	851.82	79.80	65.83	788.09
MW-13-34	11/11/2024	74.0	79.0	853.92	851.82	79.80	65.58	788.34
MW-13-37	5/13/2024	97.0	112.0	866.02	863.75	114.40	69.66	796.36
MW-13-37	11/11/2024	97.0	112.0	866.02	863.75	119.80	70.00	796.02
MW-13-38	5/13/2024	107.0	124.0	866.47	863.71	126.30	70.31	796.16
MW-13-38	11/11/2024	107.0	124.0	866.47	863.71	132.00	70.67	795.80
MW-13-39B	5/13/2024	97.0	112.0	860.20	857.33	105.15	63.38	796.82
MW-13-39B	11/11/2024	97.0	112.0	860.20	857.33	105.15	63.72	796.48
MW-13-40	5/13/2024	72.0	77.0	862.95	859.74	78.85	55.42	807.53
MW-13-40	11/11/2024	72.0	77.0	862.95	859.74	80.00	55.28	807.67
MW-13-41	5/13/2024	77.0	82.0	863.41	863.68	81.50	55.13	808.28
MW-13-41	11/11/2024	77.0	82.0	863.41	863.68	82.22	55.06	808.35
MW-13-46	5/13/2024	68.0	73.0	854.54	852.12	74.65	63.89	790.65
MW-13-46	11/11/2024	68.0	73.0	854.54	852.12	74.65	63.41	791.13
MW-13-47	5/13/2024	99.0	119.0	853.74	851.89	113.65	65.22	788.52
MW-13-47	11/11/2024	99.0	119.0	853.74	851.89	113.65	65.17	788.57
MW-13-48	5/13/2024	65.0	70.0	854.83	852.17	73.05	56.42	798.41
MW-13-48	11/11/2024	65.0	70.0	854.83	852.17	73.05	55.98	798.85
MW-13-49	5/13/2024	73.0	78.0	853.01	850.55	81.65	65.45	787.56
MW-13-49	11/11/2024	73.0	78.0	853.01	850.55	81.65	65.31	787.70
MW-14-64	5/13/2024	98.6	103.6	864.56	861.77	107.07	69.75	794.81
MW-14-64	11/11/2024	98.6	103.6	864.56	861.77	106.30	69.75	794.81
MW-15-71	5/13/2024	110.0	115.0	864.07	861.71	177.70	66.41	797.66
MW-15-71	11/11/2024	110.0	115.0	864.07	861.71	119.20	66.56	797.51
MW-18-100	5/13/2024	8.0	13.0	863.94	861.49	15.73	9.52	854.42
MW-18-100	11/11/2024	8.0	13.0	863.94	861.49	15.85	10.42	853.52
MW-18-101	5/13/2024	80.0	85.0	863.87	861.24	87.40	63.45	800.42
MW-18-101	11/11/2024	80.0	85.0	863.87	861.24	87.40	63.35	800.52
MW-18-102	5/13/2024	10.0	15.0	863.13	863.44	14.70	7.54	855.59
MW-18-102	11/11/2024	10.0	15.0	863.13	863.44	14.70	12.31	850.82
MW-18-103	5/13/2024	5.0	10.0	859.13	859.74	10.65	1.64	857.49
MW-18-103	11/11/2024	5.0	10.0	859.13	859.74	10.65	4.09	855.04
MW-18-104	5/13/2024	5.0	10.0	859.12	859.82	9.50	1.32	857.80
MW-18-104	11/11/2024	5.0	10.0	859.12	859.82	9.50	3.89	855.23
MW-18-105	5/13/2024	6.0	11.0	858.59	859.01	11.20	0.51	858.08
MW-18-105	11/11/2024	6.0	11.0	858.59	859.01	11.20	1.85	856.74
MW-18-106	5/13/2024	5.0	10.0	866.15	866.51	9.60	1.96	864.19
MW-18-106	11/11/2024	5.0	10.0	866.15	866.51	9.60	7.97	858.18
MW-18-88	5/13/2024	6.0	11.0	863.70	860.93	15.00	4.25	859.45
MW-18-88	11/11/2024	6.0	11.0	863.70	860.93	15.00	5.35	858.35
MW-18-89	5/13/2024	7.0	12.0	866.53	863.51	15.65	5.47	861.06
MW-18-89	11/11/2024	7.0	12.0	866.53	863.51	15.65	7.97	858.56
MW-18-90	5/13/2024	15.0	20.0	866.32	863.25	23.20	8.69	857.63
MW-18-90	11/11/2024	15.0	20.0	866.32	863.25	23.15	11.00	855.32
MW-18-91	5/13/2024	7.0	12.0	865.94	863.43	15.00	5.17	860.77
MW-18-91	11/12/2024	7.0	12.0	865.94	863.43	15.05	7.19	858.75
MW-18-92	5/13/2024	23.0	28.0	870.43	869.08	30.15	12.14	858.29
MW-18-92	11/11/2024	23.0	28.0	870.43	869.08	30.15	20.58	849.85
MW-18-93	5/13/2024	77.5	82.5	863.77	860.99	85.00	47.94	815.83
MW-18-93	11/11/2024	77.5	82.5	863.77	860.99	85.00	47.49	816.28
MW-18-94	5/14/2024	72.0	77.0	866.34	863.86	79.70	53.03	813.31
MW-18-94	11/12/2024	72.0	77.0	866.34	863.86	79.70	53.32	813.02
MW-18-95	5/13/2024	4.5	9.5	864.66	861.76	12.50	6.33	858.33
MW-18-95	11/11/2024	4.5	9.5	864.66	861.76	12.50	7.01	857.65
MW-18-96	5/13/2024	7.0	12.0	864.60	861.64	14.88	DRY	DRY

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Lansing, Michigan

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MW-18-96	11/11/2024	7.0	12.0	864.60	861.64	14.90	DRY	DRY
MW-18-97	5/13/2024	85.0	90.0	860.91	859.13	91.70	62.99	797.92
MW-18-97	11/11/2024	85.0	90.0	860.91	859.13	93.35	64.40	796.51
MW-18-98	5/13/2024	7.0	12.0	862.16	859.10	14.95	4.68	857.48
MW-18-98	11/11/2024	7.0	12.0	862.16	859.10	14.95	4.42	857.74
MW-18-99	5/13/2024	9.0	14.0	862.47	859.95	16.90	2.78	859.69
MW-18-99	11/11/2024	9.0	14.0	862.47	859.95	16.90	2.82	859.65
MW-19-107	5/13/2024	23.0	28.0	870.65	869.20	29.86	13.51	857.14
MW-19-107	11/11/2024	23.0	28.0	870.65	869.20	29.86	23.13	847.52
MW-19-108	5/13/2024	23.0	28.0	872.60	870.22	30.00	13.31	859.29
MW-19-108	11/11/2024	23.0	28.0	872.60	870.22	30.00	21.18	851.42
MW-19-110	5/13/2024	8.0	13.0	863.67	860.72	16.25	16.22	847.45
MW-19-110	11/11/2024	8.0	13.0	863.67	860.72	16.25	DRY	DRY
MW-19-111	5/13/2024	20.0	25.0	874.51	871.70	27.45	20.94	853.57
MW-19-111	11/11/2024	20.0	25.0	874.51	871.70	27.45	25.56	848.95
MW-19-112	5/13/2024	9.0	14.0	861.63	858.53	17.60	5.35	856.28
MW-19-112	11/11/2024	9.0	14.0	861.63	858.53	17.60	7.52	854.11
MW-19-113	5/13/2024	16.0	21.0	860.67	857.73	24.60	24.11	836.56
MW-19-113	11/11/2024	16.0	21.0	860.67	857.73	24.60	DRY	DRY
MW-19-114	5/13/2024	6.0	11.0	861.25	861.79	10.80	1.50	859.75
MW-19-114	11/11/2024	6.0	11.0	861.25	861.79	10.80	3.11	858.14
MW-19-119D	5/13/2024	180.0	195.0	864.42	861.66	199.41	57.48	806.94
MW-19-119D	11/11/2024	180.0	195.0	864.42	861.66	197.90	86.09	778.33
MW-19-119S	5/13/2024	145.0	160.0	864.32	861.66	164.60	70.86	793.46
MW-19-119S	11/11/2024	145.0	160.0	864.32	861.66	163.90	71.04	793.28
MW-22	5/13/2024	52.5	62.5	859.69	860.08	63.41	45.29	814.40
MW-22	11/11/2024	52.5	62.5	859.69	860.08	62.11	45.20	814.49
MW-23	5/13/2024	52.0	62.0	863.71	859.82	65.61	48.58	815.13
MW-23	11/11/2024	52.0	62.0	863.71	859.82	65.89	48.36	815.35
MW-88-1	5/13/2024	103.5	140.0	858.75	859.06	137.25	64.65	794.10
MW-88-1	11/11/2024	103.5	140.0	858.75	859.06	137.25	65.49	793.26
MW-91-2R	5/13/2024	75.0	80.0	866.84	863.63	83.71	57.46	809.38
MW-91-2R	11/11/2024	75.0	80.0	866.84	863.63	85.12	57.56	809.28
MW-91-3	5/13/2024	105.0	117.0	860.81	859.35	119.05	65.62	795.19
MW-91-3	11/11/2024	105.0	117.0	860.81	859.35	119.05	66.28	794.53
MW-91-4	5/13/2024	116.0	132.5	855.59	855.93	130.60	58.63	796.96
MW-91-4	11/11/2024	116.0	132.5	855.59	855.93	130.60	59.02	796.57
MW-91-5	5/13/2024	112.5	128.0	860.61	861.20	126.35	63.33	797.28
MW-91-5	11/11/2024	112.5	128.0	860.61	861.20	126.35	63.69	796.92
MW-91-6	5/13/2024	82.0	98.0	851.84	852.22	95.50	62.05	789.79
MW-91-6	11/11/2024	82.0	98.0	851.84	852.22	95.50	61.96	789.88
MW-93-1	5/13/2024	65.0	75.0	866.05	863.56	70.17	63.56	802.49
MW-93-1	11/11/2024	65.0	75.0	866.05	863.56	70.20	63.83	802.22
P3-SB-28	5/13/2024	8.0	13.0	866.43	863.63	10.27	5.20	861.23
P3-SB-28	11/12/2024	8.0	13.0	866.43	863.63	10.35	6.55	859.88
PW-14-03R	5/13/2024	85.0	90.0	864.31	861.55	99.06	72.17	792.14
PW-14-03R	11/12/2024	85.0	90.0	864.31	861.55	95.50	77.09	787.22
TW-15-11	5/13/2024	85.0	90.0	864.51	861.60	87.01	71.76	792.75
TW-15-11	11/11/2024	85.0	90.0	864.51	861.60	87.05	67.50	797.01
UNK-11	5/13/2024	6.5	11.5	859.91	860.17	11.77	0.03	859.88
UNK-11	11/11/2024	6.5	11.5	859.91	860.17	11.24	0.20	859.71
UNK-15	5/13/2024	11.0	16.0	859.56	859.94	15.67	0.49	859.07
UNK-15	11/11/2024	11.0	16.0	859.56	859.94	15.62	1.00	858.56
Plant 6								
MW-02-02(6)	5/13/2024	35.0	45.0	868.04	868.41	43.38	28.58	839.46
MW-02-02(6)	11/11/2024	35.0	45.0	868.04	868.41	43.47	28.65	839.39
MW-03-02	5/13/2024	30.0	40.0	864.52	864.76	37.30	19.98	844.54
MW-03-02	11/11/2024	30.0	40.0	864.52	864.76	37.20	20.55	843.97
MW-03-05	5/13/2024	35.0	45.0	868.90	869.14	48.00	22.24	846.66
MW-03-05	11/11/2024	35.0	45.0	868.90	869.14	48.00	20.20	848.70
MW-03-06	5/13/2024	30.0	40.0	870.45	870.80	40.58	35.78	834.67
MW-03-06	11/11/2024	30.0	40.0	870.45	870.80	40.58	35.43	835.02
MW-03-08	5/13/2024	35.0	45.0	869.03	869.39	NM	NM	NM
MW-03-07	11/11/2024	30.0	40.0	866.88	867.02	40.48	24.80	842.08

Table 8
Summary of Groundwater Elevations - 2024
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Well ID	Date Collected	Screened Interval Top (feet bgs)	Screened Interval Bottom (feet bgs)	Reference Elevation - TOC (feet amsl)	Ground Surface Elevation (feet amsl)	Total Well Depth (feet below TOC)	Corrected Depth to Water (feet below TOC)	Corrected Groundwater Elevation (feet amsl)
MW-03-08	11/11/2024	35.0	45.0	869.03	869.39	44.64	NM	NM
MW-04-01(6)	5/13/2024	78.0	88.0	866.85	867.15	87.96	70.40	796.45
MW-04-01(6)	11/11/2024	78.0	88.0	866.85	867.15	89.05	70.35	796.50
MW-04-04R	5/13/2024	82.0	110.0	873.31	870.64	111.00	76.02	797.29
MW-04-04R	11/11/2024	82.0	110.0	873.31	870.64	115.00	76.08	797.23
MW-04-05(6)	5/13/2024	20.0	30.0	858.33	858.87	29.60	8.83	849.50
MW-04-05(6)	11/11/2024	20.0	30.0	858.33	858.87	29.60	9.30	849.03
MW-04-06R	5/13/2024	74.0	99.5	861.56	858.59	77.94	65.39	796.17
MW-04-06R	11/11/2024	74.0	99.5	861.56	858.59	80.00	65.30	796.26
MW-12-03	5/13/2024	57.0	80.0	859.10	856.71	82.29	61.88	797.22
MW-12-03	11/11/2024	57.0	80.0	859.10	856.71	86.00	61.90	797.20
MW-12-10R	5/13/2024	10.0	15.0	862.29	858.92	17.96	10.83	851.46
MW-12-10R	11/11/2024	10.0	15.0	862.29	858.92	17.97	12.57	849.72
MW-12-11	5/13/2024	13.0	18.0	857.26	857.68	16.79	3.07	854.19
MW-12-11	11/11/2024	13.0	18.0	857.26	857.68	17.58	6.64	850.62
MW-12-12	5/13/2024	13.0	18.0	874.34	874.61	17.20	6.13	868.21
MW-12-12	11/11/2024	13.0	18.0	874.34	874.61	17.20	9.11	865.23
MW-12-13	5/13/2024	18.5	23.5	882.60	880.51	25.45	9.65	872.95
MW-12-13	11/11/2024	18.5	23.5	882.60	880.51	25.06	12.08	870.52
MW-12-14	5/13/2024	25.0	30.0	872.56	869.28	32.05	24.98	847.58
MW-12-14	11/11/2024	25.0	30.0	872.56	869.28	32.05	25.78	846.78
MW-12-16	5/13/2024	28.0	33.0	864.24	864.73	32.16	22.59	841.65
MW-12-16	11/11/2024	28.0	33.0	864.24	864.73	32.51	22.34	841.90
MW-13-36R	5/13/2024	5.5	10.5	878.04	875.28	12.57	5.09	872.95
MW-13-36R	11/11/2024	5.5	10.5	878.04	875.28	12.60	7.85	870.19
MW-13-50	5/13/2024	85.0	107.0	872.85	869.93	109.80	83.41	789.44
MW-13-50	11/11/2024	85.0	107.0	872.85	869.93	116.80	83.40	789.45
MW-13-52	5/13/2024	70.0	80.0	872.50	869.84	81.42	68.35	804.15
MW-13-52	11/11/2024	70.0	80.0	872.50	869.84	82.75	68.71	803.79
MW-13-53	5/13/2024	73.0	83.0	875.56	873.10	85.44	74.75	800.81
MW-13-53	11/11/2024	73.0	83.0	875.56	873.10	87.05	74.31	801.25
MW-14-66	5/13/2024	14.0	19.0	877.85	874.73	22.23	4.49	873.36
MW-14-66	11/11/2024	14.0	19.0	877.85	874.73	22.22	5.62	872.23
MW-14-67	5/13/2024	13.0	18.0	877.76	875.07	20.83	4.71	873.05
MW-14-67	11/11/2024	13.0	18.0	877.76	875.07	20.84	6.58	871.18
MW-14-69	5/13/2024	41.0	46.0	883.62	880.72	48.99	DRY	DRY
MW-14-69	11/11/2024	41.0	46.0	883.62	880.72	49.00	DRY	DRY
MW-14-70	5/13/2024	16.0	21.0	882.79	880.08	23.08	9.80	872.99
MW-14-70	11/11/2024	16.0	21.0	882.79	880.08	23.07	13.36	869.43
MW-20-131	5/13/2024	5.0	10.0	858.21	858.66	8.65	4.26	853.95
MW-20-131	11/11/2024	5.0	10.0	858.21	858.66	8.65	5.58	852.63
MW-20-132	5/13/2024	6.0	11.0	858.01	858.38	10.81	4.65	853.36
MW-20-132	11/11/2024	6.0	11.0	858.01	858.38	10.63	5.83	852.18
MW-21-133	5/13/2024	10.0	15.0	876.67	872.91	18.76	7.59	869.08
MW-21-133	11/11/2024	10.0	15.0	876.67	872.91	18.75	12.81	863.86
MW-21-134	5/13/2024	11.0	16.0	872.97	869.38	20.09	7.43	865.54
MW-21-134	11/11/2024	11.0	16.0	872.97	869.38	20.08	14.09	858.88
MW-21-135	5/13/2024	22.0	27.0	872.10	868.60	29.57	24.99	847.11
MW-21-135	11/11/2024	22.0	27.0	872.10	868.60	26.95	25.65	846.45
MW-21-136	5/13/2024	9.0	14.0	865.91	866.31	13.70	6.72	859.19
MW-21-136	11/11/2024	9.0	14.0	865.91	866.31	13.60	8.32	857.59
MW-21-137	5/13/2024	7.0	12.0	866.99	867.50	11.50	8.84	858.15
MW-21-137	11/11/2024	7.0	12.0	866.99	867.50	11.49	9.74	857.25
MW-21-138	5/13/2024	24.0	29.0	867.05	867.54	28.65	21.23	845.82
MW-21-138	11/11/2024	24.0	29.0	867.05	867.54	28.51	21.18	845.87
MW-21-141	5/13/2024	72.0	77.0	874.03	871.05	79.71	77.42	796.61
MW-21-141	11/11/2024	72.0	77.0	874.03	871.05	81.00	77.41	796.62
MW-22-143	5/13/2024	26.0	31.0	864.23	864.52	31.01	16.76	847.47
MW-22-143	11/11/2024	26.0	31.0	864.23	864.52	30.71	17.50	846.73
MW-22-144	5/13/2024	19.5	24.5	863.27	863.91	24.05	11.56	851.71
MW-22-144	11/11/2024	19.5	24.5	863.27	863.91	23.86	13.26	850.01
MW-22-145	5/13/2024	10.5	15.5	863.25	863.87	14.83	10.84	852.41
MW-22-145	11/11/2024	10.5	15.5	863.25	863.87	14.88	13.14	850.11
MW-22-146	5/13/2024	5.5	10.5	861.74	862.17	9.89	4.97	856.77

Table 8
Summary of Groundwater Elevations - 2024
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Well ID	Date Collected	Screened Interval Top (feet bgs)	Screened Interval Bottom (feet bgs)	Reference Elevation - TOC (feet amsl)	Ground Surface Elevation (feet amsl)	Total Well Depth (feet below TOC)	Corrected Depth to Water (feet below TOC)	Corrected Groundwater Elevation (feet amsl)
MW-22-146	11/11/2024	5.5	10.5	861.74	862.17	10.07	7.77	853.97
MW-22-147	5/13/2024	7.5	12.5	865.46	865.83	12.20	8.78	856.68
MW-22-147	11/11/2024	7.5	12.5	865.46	865.83	12.13	9.59	855.87
MW-22-148	5/13/2024	24.5	29.5	865.93	866.12	29.29	24.77	841.16
MW-22-148	11/11/2024	24.5	29.5	865.93	866.12	29.31	24.36	841.57
MW-22-149	5/13/2024	5.5	10.5	866.24	866.68	9.92	5.02	861.22
MW-22-149	11/11/2024	5.5	10.5	866.24	866.68	10.06	5.94	860.30
MW-22-150	5/13/2024	13.0	18.0	859.62	859.84	17.93	5.30	854.32
MW-22-150	11/11/2024	13.0	18.0	859.62	859.84	17.78	6.04	853.58
MW-22-151	5/13/2024	13.0	18.0	856.66	857.04	14.92	5.92	850.74
MW-22-151	11/11/2024	13.0	18.0	856.66	857.04	17.62	6.48	850.18
MW-22-152	5/13/2024	10.0	15.0	857.23	857.50	14.89	7.35	849.88
MW-22-152	11/11/2024	10.0	15.0	857.23	857.50	14.73	8.14	849.09
MW-22-154	5/13/2024	6.0	11.0	855.81	856.29	10.56	4.62	851.19
MW-22-154	11/11/2024	6.0	11.0	855.81	856.29	10.52	5.99	849.82
MW-22-158	5/13/2024	16.0	21.0	863.45	863.87	20.16	12.46	850.99
MW-22-158	11/11/2024	16.0	21.0	863.45	863.87	20.58	15.11	848.34
MW-22-159	5/13/2024	26.0	31.0	864.41	864.78	29.82	DRY	DRY
MW-22-159	11/12/2024	26.0	31.0	864.41	864.78	29.80	DRY	DRY
MW-22-160	5/13/2024	14.0	19.0	860.77	861.40	18.18	12.65	848.12
MW-22-160	11/11/2024	14.0	19.0	860.77	861.40	18.37	14.32	846.45
MWBP-10-UST5-6	5/13/2024	28.0	38.0	867.70	867.99	36.83	29.37	838.33
MWBP-10-UST5-6	11/11/2024	28.0	38.0	867.70	867.99	36.80	29.62	838.08
MWBP-11-UST1-4	5/13/2024	9.0	19.0	868.66	869.07	11.26	0.54	868.12
MWBP-11-UST1-4	11/11/2024	9.0	19.0	868.66	869.07	11.23	2.35	866.31
MWBP-12-UST1-4	5/13/2024	15.0	25.0	870.02	870.58	11.31	1.07	868.95
MWBP-12-UST1-4	11/11/2024	15.0	25.0	870.02	870.58	11.08	1.76	868.26
P6-MW-01	5/13/2024	23.0	28.0	870.10	866.87	31.17	28.61	841.49
P6-MW-01	11/11/2024	23.0	28.0	870.10	866.87	31.20	28.35	841.75
P6-SB-07	5/13/2024	15.0	20.0	877.36	874.36	23.62	5.21	872.15
P6-SB-07	11/11/2024	15.0	20.0	877.36	874.36	23.61	8.20	869.16
P6-SB-18	5/13/2024	3.0	8.0	878.72	874.65	12.13	4.82	873.90
P6-SB-18	11/11/2024	3.0	8.0	878.72	874.65	12.10	5.16	873.56
P6-SB-21	5/13/2024	3.0	8.0	874.20	870.92	11.11	2.31	871.89
P6-SB-21	11/11/2024	3.0	8.0	874.20	870.92	11.12	2.30	871.90

Notes:

1. Previously included wells MW-16-79, TW-14-07, TW-14-08, TW-14-09, TW-15-10 have been abandoned and removed from the table.
2. MW-02-03(3), MW-03-08, and PMW-02 could not be gauged as planned due to flooding in the area.
3. MW-14-61 could not be gauged as planned due to a new plug that appears glued in place.
4. MW-04-01(3) is not required by the IGMP but was gauged on 5/13/2024 and was not gauged on 11/11/2024.

Abbreviations:

amsl = above mean sea level
bgs = below ground surface
DRY = well was dry and depth to water could not be gauged
NM = not measured
RACER = Revitalizing Auto Communities Environmental Response
TOC = top of casing
NA = not applicable
NS = not surveyed

Table 9
Summary of Bedrock Groundwater Elevations
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

		Screen (feet below grade)			Reference Elevation (feet amsl)	Groundwater Elevation 5/13/2024 (feet amsl)	Vertical Gradient (ft/ft)	Formation
		Top	Bottom	Mid-point				
Plant 2								
MW-14-63	W. Bedrock	68	73	70.5	854.64	786.92	0.05	Grand River Formation
MW-12-02	Bedrock	87	110	98.5	853.91	785.63		
MW-13-43	W. Bedrock	72	77	74.5	863.82	795.96	0.27	Saginaw Formation
MW-13-44	Bedrock	96	115	105.5	864.24	787.64		
MW-14-61	W. Bedrock	70	75	72.5	865.51	797.61	0.38	Saginaw Formation
MW-12-06	Bedrock	80.6	99.5	90.1	864.64	790.86		
MW-15-72	W. Bedrock	63	68	65.5	865.09	808.23	0.51	Saginaw Formation
MW-12-05R	Bedrock	100	112	106.0	861.80	787.49		
MW-16-76	W. Bedrock	70	75	72.5	867.76	802.18	0.53	Saginaw Formation
MW-12-01	Bedrock	87	110	98.5	867.94	788.50		
MW-16-83	W. Bedrock	71	76	73.5	862.97	788.47	0.07	Saginaw Formation
MW-17-87	Bedrock	100	112	106.0	862.82	786.25		
MW-15-73*	W. Bedrock	78	83	80.5	861.56	787.33	0.03	Saginaw Formation
MW-19-118S*	Bedrock	145	160	152.5	862.81	785.00		
MW-19-118D*	W. Bedrock	175	190	182.5	862.78	784.96	0.001	Saginaw Formation
MW-19-118S*	Bedrock	145	160	152.5	862.81	785.00		
MW-20-127	W. Bedrock	72	77	74.5	862.58	794.86	0.24	Saginaw Formation
MW-19-125	Bedrock	100	115	107.5	865.11	786.79		

Table 9
Summary of Bedrock Groundwater Elevations
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

		Screen (feet below grade)			Reference Elevation (feet amsl)	Groundwater Elevation 5/13/2024 (feet amsl)	Vertical Gradient (ft/ft)	Formation
		Top	Bottom	Mid-point				
Plant 3								
MW-13-22	W. Bedrock	89	94	91.5	864.37	795.35	0.04	Grand River Formation
MW-13-28	Bedrock	99	115.5	107.3	864.42	794.67		
MW-13-46	W. Bedrock	68	73	70.5	854.54	790.65	0.04	Grand River Formation
MW-91-6	Bedrock	82	98	90	851.84	789.79		
MW-04-03(3)	Deep Overburden	80	90	85	860.72	798.02	0.02	Grand River Formation
MW-04-02(3)	Bedrock	126	136	131	861.09	797.16		
MW-04-04(3)	Deep Overburden	72	82	77	855.72	798.59	0.03	Grand River Formation
MW-91-4	Bedrock	116	132.5	124.3	855.59	796.96		
MW-13-41	Deep Overburden	77	82	79.5	863.41	808.28	0.34	Saginaw Formation
MW-13-38	Bedrock	107	124	115.5	866.47	796.16		
Plant 6								
MW-13-52	W. Bedrock	70	80	75	872.50	804.15	0.70	Saginaw Formation
MW-13-50	Bedrock	85	107	96	872.85	789.44		

Notes:

ft/ft = foot per foot
GR Fm = Grand River Formation
amsl = above mean sea level
NA = not applicable
NM = not measured
RACER = Revitalizing Auto Communities Environmental Response
Sag Fm = Saginaw Formation
W. Bedrock = weathered bedrock
** Not used for geometric mean calculation because not consistent with depth of other wells onsite*

Vertical Gradient Geometric Mean Sag Fm	0.32
Vertical Gradient Geometric Mean GR Fm	0.036

Table 10
Mann-Kendall Trend Test Results - 2024
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Plant ID	Well ID	Analyte	Date Range	FOD	Detected Results Summary [1]				Mann-Kendall Test [2]			
					Range	Mean	Median	SD	Result[4]	MK Result Note	P-Value	S Value
Plant 2	MW-12-09	Perfluorooctanoic acid (PFOA)	06/19 - 05/24	10 / 10	11.9 - 19	14.8	15	2	UP	--	0.007	28
Plant 2	MW-13-45	1,4-Dioxane	12/13 - 11/24	28 / 29	24 - 58	40.5	40.5	11.3	NST	--	0.189	-48
Plant 2	MW-14-54	Benzene	09/14 - 05/24	12 / 12	2 - 820	408	490	296	UP	--	0.023	30
Plant 2	MW-14-54	Ethylbenzene	09/14 - 05/24	12 / 12	2 - 1710	788	925	612	UP	--	0.075	22
Plant 2	MW-14-54	Isopropyl benzene	09/14 - 05/24	9 / 12	2 - 70	42.8	50	19.8	UP	--	0.030	28
Plant 2	MW-14-54	m&p-Xylene	09/14 - 05/24	11 / 12	109 - 1610	795	840	461	UP	--	0.002	42
Plant 2	MW-14-54	o-Xylene	09/14 - 05/24	11 / 12	10 - 200	59.2	40	63	NST	--	0.168	15
Plant 2	MW-14-56	1,4-Dioxane	09/14 - 04/24	17 / 19	6 - 18	9.9	9	3.9	UP	--	<0.001	123
Plant 2	MW-14-58R	1,4-Dioxane	12/21 - 11/24	12 / 12	173 - 520	277	235	117	DWN	--	0.065	-23
Plant 2	MW-14-59	Perfluorooctanoic acid (PFOA)	06/19 - 05/24	9 / 10	6.7 - 15	9.9	8.8	3	UP	--	0.030	22
Plant 2	MW-14-59	1,1-Dichloroethene	09/14 - 05/24	12 / 12	16 - 39	24.4	22.5	7.4	DWN	--	0.011	-34
Plant 2	MW-14-59	1,4-Dioxane	09/14 - 05/24	14 / 14	7 - 280	113	70	99.4	DWN	--	<0.001	-82
Plant 2	MW-14-60	Perfluorooctane sulfonic acid (PFOS)	05/18 - 05/24	10 / 11	5.6 - 50	26.9	30	14.7	UP	--	0.031	25
Plant 2	MW-14-60	Perfluorooctanoic acid (PFOA)	05/18 - 05/24	11 / 11	14.7 - 41	29.4	29	9.8	UP	--	0.036	24
Plant 2	MW-14-60	1,4-Dioxane	09/14 - 05/24	14 / 14	6 - 200	105	123	67.6	DWN	--	<0.001	-82
Plant 2	MW-14-60	Vinyl chloride	09/14 - 05/24	12 / 12	2 - 12	5.2	3.5	3.3	NST	--	0.263	10
Plant 2	MW-14-61	1,4-Dioxane	09/14 - 11/24	21 / 24	5 - 152	42	13	55.4	NST	--	0.480	3
Plant 2	MW-14-62	Perfluorononanoic acid (PFNA)	05/18 - 05/24	11 / 11	5.1 - 11.9	8.1	7.7	1.8	NST	--	0.469	2
Plant 2	MW-14-62	Perfluorooctane sulfonic acid (PFOS)	05/18 - 05/24	11 / 11	47 - 86.8	61.8	54	13.6	DWN	--	0.025	-26
Plant 2	MW-14-62	Perfluorooctanoic acid (PFOA)	05/18 - 05/24	11 / 11	36.5 - 94.3	57.3	53	15.5	NST	--	0.438	3
Plant 2	MW-14-62	1,4-Dioxane	09/14 - 05/24	14 / 14	27 - 230	88.1	65	61.2	NST	--	0.371	-7
Plant 2	MW-15-72	1,4-Dioxane	03/16 - 11/24	27 / 27	11 - 310	181	190	91.3	DWN	--	0.013	-107
Plant 2	MW-15-73	1,4-Dioxane	03/16 - 04/24	11 / 13	3 - 11	7.2	7	2.8	UP	--	0.021	34
Plant 2	MW-16-80	1,4-Dioxane	06/16 - 04/24	16 / 17	7 - 46	24.3	23	7.7	NST	--	0.160	-25
Plant 2	MW-16-81	1,4-Dioxane	06/16 - 11/24	28 / 28	38 - 3200	912	510	985	DWN	--	0.041	-89
Plant 2	MW-16-84	1,4-Dioxane	09/16 - 11/24	27 / 27	15 - 81	48.9	47	16.3	NST	--	0.246	-34
Plant 2	MW-16-85	1,4-Dioxane	12/16 - 11/24	17 / 17	1 - 28	9.4	8	6.7	UP	--	0.040	43
Plant 2	MW-17-86	1,4-Dioxane	04/17 - 11/24	20 / 20	11 - 106	53.2	46	33	DWN	--	0.017	-66
Plant 2	MW-19-115	1,4-Dioxane	03/20 - 11/24	14 / 14	2 - 13	7.4	7.5	3	NST	--	0.118	-22
Plant 2	MW-19-116	1,4-Dioxane	03/20 - 11/24	14 / 14	54 - 148	75.4	68.5	25.5	UP	--	0.055	30
Plant 2	MW-19-120	1,4-Dioxane	12/19 - 11/24	15 / 15	7 - 198	61.5	15	71.7	DWN	--	<0.001	-75
Plant 2	MW-19-123	1,4-Dioxane	12/19 - 11/24	19 / 19	19 - 76	43.9	44	18.4	DWN	--	0.016	-62
Plant 2	MW-19-124	1,4-Dioxane	12/19 - 11/24	14 / 14	90 - 420	202	184	77.8	DWN	--	0.040	-33
Plant 2	MW-20-126	1,4-Dioxane	07/20 - 11/24	17 / 17	7 - 370	146	120	111	DWN	--	<0.001	-124
Plant 2	MW-20-127	1,4-Dioxane	07/20 - 11/24	17 / 17	85 - 180	143	142	23.6	UP	--	0.003	67
Plant 2	MW-20-129	1,4-Dioxane	07/20 - 11/24	17 / 17	60 - 140	89.1	80	24.5	DWN	--	<0.001	-85
Plant 2	MW-20-130	1,4-Dioxane	12/20 - 11/24	8 / 8	6 - 170	61	49.5	57.9	NST	--	0.452	-2
Plant 2	MW-21-139	Perfluorohexanesulfonic acid (PFHxS)	12/21 - 11/24	9 / 9	180 - 410	270	260	63	NST	--	0.155	11
Plant 2	MW-21-139	Perfluorononanoic acid (PFNA)	12/21 - 11/24	9 / 9	6.5 - 27	18.5	18	6	NST	--	0.155	11
Plant 2	MW-21-139	Perfluorooctane sulfonic acid (PFOS)	12/21 - 11/24	9 / 9	680 - 2100	1560	1700	460	NST	--	0.179	10
Plant 2	MW-21-139	Perfluorooctanoic acid (PFOA)	12/21 - 11/24	9 / 9	49 - 130	89.4	84	22.7	NST	--	0.209	9
Plant 2	MW-21-142	1,4-Dioxane	12/21 - 11/24	8 / 8	64 - 112	82.5	81.5	16.5	NST	--	0.274	6
Plant 2	MW-22-153	1,4-Dioxane	04/22 - 11/24	11 / 11	18 - 101	61	55	27	NST	--	0.241	-10
Plant 2	MW-22-155	1,4-Dioxane	09/22 - 11/24	9 / 9	36 - 410	213	160	124	DWN	--	0.038	-18
Plant 2	MW-22-156	1,1-Dichloroethene	02/23 - 11/24	7 / 7	15 - 38	22.6	20	7.4	DWN	5a	0.035	-13
Plant 2	MW-22-156	1,4-Dioxane	09/22 - 11/24	8 / 8	47 - 144	96	91	35.4	NST	--	0.274	6
Plant 2	MW-22-157	1,4-Dioxane	09/22 - 11/24	8 / 8	3 - 123	49.4	42.5	48.2	UP	--	0.072	13
Plant 2	P2-MW-04	1,4-Dioxane	08/11 - 05/24	15 / 16	11 - 62	39.6	40	15.7	DWN	--	0.009	-53
Plant 2	PW-14-02	1,4-Dioxane	09/14 - 11/24	31 / 31	5 - 580	144	95	151	DWN	--	<0.001	-308
Plant 2	TW-14-02	1,4-Dioxane	06/15 - 11/24	31 / 38	3 - 3500	962	239	1200	DWN	--	<0.001	-383
Plant 3	CH-14-RO	Chromium III (trivalent)	08/11 - 05/24	17 / 17	7.2 - 27.1	15.1	15.1	6.4	DWN	--	<0.001	-111
Plant 3	CH-14-RO	Chromium VI (hexavalent)	08/11 - 05/24	17 / 17	6.7 - 28.4	15.7	14.6	7.1	DWN	--	<0.001	-112
Plant 3	CH-14-RO	Perfluorohexanesulfonic acid (PFHxS)	12/16 - 05/24	13 / 13	1000 - 2520	1770	1680	442	DWN	--	0.014	-37
Plant 3	CH-14-RO	Perfluorooctane sulfonic acid (PFOS)	12/16 - 05/24	13 / 13	7100 - 13000	11000	11200	1680	DWN	--	0.022	-34
Plant 3	CH-14-RO	Perfluorooctanoic acid (PFOA)	12/16 - 05/24	13 / 13	69.2 - 190	112	116	30.9	NST	--	0.524	0
Plant 3	MW-02-04(3)	Arsenic	07/03 - 05/24	15 / 15	0.007 - 0.083	0.03	0.021	0.024	UP	--	<0.001	79
Plant 3	MW-02-04(3)	Arsenic (dissolved)	10/03 - 05/24	8 / 8	0.003 - 0.02	0.011	0.0115	0.0059	UP	--	0.016	18
Plant 3	MW-12-21	1,4-Dioxane	02/13 - 11/24	29 / 30	118 - 510	267	230	121	DWN	--	<0.001	-258
Plant 3	MW-13-22	1,4-Dioxane	03/13 - 11/24	37 / 37	45 - 270	150	157	53.4	DWN	--	0.014	-169
Plant 3	MW-13-29	1,4-Dioxane	04/13 - 11/24	23 / 23	6 - 130	24	18	24.8	DWN	--	<0.001	-165
Plant 3	MW-13-32	Nickel	08/13 - 05/24	22 / 22	0.043 - 4.7	1.1	0.776	1.2	DWN	--	0.040	-63
Plant 3	MW-13-34	1,4-Dioxane	08/13 - 11/24	35 / 35	17 - 127	79.1	81	23.1	UP	--	<0.001	338
Plant 3	MW-13-48	1,4-Dioxane	12/13 - 11/24	28 / 28	24 - 380	141	128	87.3	DWN	--	0.038	-91
Plant 3	MW-18-103	Perfluorohexanesulfonic acid (PFHxS)	03/19 - 05/24	19 / 19	16.8 - 190	55.2	48.7	40.9	UP	--	<0.001	107
Plant 3	MW-18-88	Perfluorooctane sulfonic acid (PFOS)	12/18 - 11/24	21 / 21	46.1 - 860	207	161	170	UP	--	0.002	99
Plant 3	MW-18-88	Perfluorooctanoic acid (PFOA)	12/18 - 11/24	21 / 21	3.1 - 17	7	6.8	3.1	UP	--	0.002	98
Plant 3	MW-18-89	Perfluorooctane sulfonic acid (PFOS)	12/18 - 05/24	19 / 19	74 - 289	147	150	44.3	NST	--	0.102	-37
Plant 3	MW-18-89	Perfluorooctanoic acid (PFOA)	12/18 - 05/24	19 / 19	10 - 21.4	13.5	13	2.8	DWN	--	0.085	-40

Plant ID	Well ID	Analyte	Date Range	FOD	Detected Results Summary [1]				Mann-Kendall Test [2]			
					Range	Mean	Median	SD	Result[4]	MK Result Note	P-Value	S Value
Plant 3	MW-18-90	Perfluorooctane sulfonic acid (PFOS)	12/18 - 05/24	19 / 19	230 - 1200	948	965	191	NST	--	0.287	-17
Plant 3	MW-18-90	Perfluorooctanoic acid (PFOA)	12/18 - 05/24	19 / 19	8.1 - 21.3	16.3	16	3	DWN	--	0.039	-51
Plant 3	MW-18-91	Perfluorooctane sulfonic acid (PFOS)	12/18 - 05/24	19 / 19	34 - 89	55.1	52	13.4	DWN	--	0.002	-84
Plant 3	MW-18-95	Perfluorooctane sulfonic acid (PFOS)	03/19 - 11/24	21 / 21	27 - 115	48.5	42	22.4	DWN	--	0.065	-51
Plant 3	MW-18-98	Perfluorooctane sulfonic acid (PFOS)	03/19 - 11/24	22 / 22	33 - 440	143	109.5	107	NST	--	0.191	32
Plant 3	MW-18-99	Perfluorooctane sulfonic acid (PFOS)	03/19 - 11/24	22 / 22	46.7 - 170	86.8	76.5	33.5	NST	--	0.191	-32
Plant 3	TW-15-11	1,4-Dioxane	06/15 - 11/24	23 / 23	5 - 250	99.9	51	88.7	DWN	--	0.004	-100
Plant 3	UNK-15	Perfluorooctane sulfonic acid (PFOS)	06/19 - 11/24	19 / 19	810 - 1530	1170	1170	181	NST	--	0.199	-25
Plant 3	UNK-15	Perfluorooctanoic acid (PFOA)	06/19 - 11/24	19 / 19	21 - 49.1	33.3	32	7.6	DWN	--	<0.001	-110
Plant 6	MW-02-02(6)	1,4-Dioxane	10/11 - 05/24	10 / 10	11 - 30	20.7	21	4.8	NST	--	0.216	10
Plant 6	MW-03-06	Vinyl chloride	10/11 - 05/24	15 / 17	4 - 12	9.9	11	2.6	NST	--	0.416	6
Plant 6	MW-12-12	Perfluorononanoic acid (PFNA)	06/19 - 11/24	20 / 20	3.6 - 12.6	7.9	7.8	2.4	DWN	--	<0.001	-117
Plant 6	MW-12-12	Perfluorooctane sulfonic acid (PFOS)	06/19 - 11/24	20 / 20	19 - 67.5	42.6	43	12.9	DWN	--	<0.001	-110
Plant 6	MW-12-12	Perfluorooctanoic acid (PFOA)	06/19 - 11/24	20 / 20	52 - 150	88.1	85.5	21.5	UP	--	0.092	42
Plant 6	MW-12-13	Perfluorooctanoic acid (PFOA)	06/19 - 11/24	17 / 20	1.1 - 14	4.1	2.3	3.8	UP	--	<0.001	154
Plant 6	MW-13-36R	Vanadium	12/13 - 05/24	18 / 20	0.005 - 0.027	0.011	0.009	0.0052	NST	--	0.148	-33
Plant 6	MW-13-36R	Perfluorononanoic acid (PFNA)	06/19 - 11/24	20 / 20	11 - 16.5	13.4	13.35	1.5	NST	--	0.500	1
Plant 6	MW-13-36R	Perfluorooctane sulfonic acid (PFOS)	06/19 - 11/24	20 / 20	35 - 56.7	45.5	45.75	5.3	DWN	--	0.003	-84
Plant 6	MW-13-36R	Perfluorooctanoic acid (PFOA)	06/19 - 11/24	20 / 20	56 - 81.1	67.5	65.95	7.3	NST	--	0.410	8
Plant 6	MW-14-67	Perfluorooctanoic acid (PFOA)	06/19 - 05/24	18 / 18	10.3 - 27.1	15.7	14	5.1	UP	--	0.056	43
Plant 6	MW-14-70	Perfluorooctanoic acid (PFOA)	05/18 - 05/24	19 / 19	6.6 - 51.9	27.7	32	12.9	NST	--	0.131	-33
Plant 6	MW-20-131	Perfluorooctanoic acid (PFOA)	02/21 - 11/24	10 / 10	27 - 45	36.2	37.65	5.3	NST	--	0.271	-8
Plant 6	MW-20-131	Vinyl chloride	12/20 - 08/24	9 / 9	2 - 5	2.9	3	1.1	DWN	--	0.075	-15
Plant 6	MW-20-132	Perfluorononanoic acid (PFNA)	02/21 - 11/24	10 / 10	2.1 - 8.4	6.3	7.2	2.1	NST	--	0.431	-3
Plant 6	MW-20-132	Perfluorooctane sulfonic acid (PFOS)	02/21 - 11/24	10 / 10	6.9 - 20.2	15.6	17.5	4.6	DWN	--	0.045	-20
Plant 6	MW-20-132	Perfluorooctanoic acid (PFOA)	02/21 - 11/24	10 / 10	13 - 50	36.1	40	11.4	NST	--	0.190	-11
Plant 6	MW-20-132	Vinyl chloride	12/20 - 08/24	8 / 9	1 - 3	2.3	2.5	0.89	NST	--	0.238	-8
Plant 6	MW-21-133	Perfluorooctanoic acid (PFOA)	03/21 - 11/24	10 / 10	16 - 110	64.1	58.95	32.2	NST	--	0.332	6
Plant 6	MW-21-134	Perfluorooctanoic acid (PFOA)	03/21 - 11/24	10 / 10	22.6 - 55	36.4	34.8	11.2	NST	--	0.146	13
Plant 6	MW-21-135	Perfluorooctanoic acid (PFOA)	03/21 - 05/24	9 / 9	38 - 63	47.5	47	8	NST	--	0.381	4
Plant 6	MW-22-144	Perfluorooctanoic acid (PFOA)	08/22 - 11/24	9 / 9	5 - 17	10.8	11	4.1	UP	--	0.090	14
Plant 6	MW-22-145	Perfluorooctanoic acid (PFOA)	08/22 - 11/24	9 / 9	11 - 37	25.1	23	8.4	NST	--	0.209	9
Plant 6	MW-22-151	Perfluorooctanoic acid (PFOA)	08/22 - 11/24	9 / 9	6.9 - 15	8.8	8.1	2.4	NST	--	0.306	6
Plant 6	MWBP-10-UST5-6	Arsenic	10/11 - 05/24	18 / 21	0.003 - 0.051	0.015	0.012	0.014	UP	--	<0.001	117
Plant 6	MWBP-11-UST1-4	Arsenic	11/11 - 05/24	15 / 15	0.006 - 0.032	0.019	0.019	0.0079	DWN	--	<0.001	-68
Plant 6	MWBP-11-UST1-4	Arsenic (dissolved)	11/11 - 05/24	8 / 8	0.006 - 0.034	0.022	0.024	0.009	DWN	--	0.054	-14
Plant 6	MWBP-12-UST1-4	Arsenic	10/11 - 05/24	15 / 15	0.003 - 0.018	0.012	0.012	0.0051	NST	--	0.116	-25
Plant 6	MWBP-12-UST1-4	Vanadium	10/11 - 05/24	12 / 15	0.003 - 0.011	0.0082	0.009	0.0022	NST	--	0.343	-9
Plant 6	MWBP-12-UST1-4	Benzene	10/11 - 05/24	10 / 16	2 - 284	82.2	57.5	90.8	NST	--	0.165	22
Plant 6	P6-SB-07	Perfluorononanoic acid (PFNA)	06/19 - 05/24	18 / 18	74.6 - 220	136	135	48.3	NST	--	0.410	7
Plant 6	P6-SB-07	Perfluorooctane sulfonic acid (PFOS)	06/19 - 05/24	18 / 18	30 - 126	72	64.1	27.6	NST	--	0.202	-23
Plant 6	P6-SB-07	Perfluorooctanoic acid (PFOA)	06/19 - 05/24	18 / 18	610 - 1930	1220	1250	409	NST	--	0.500	-1

Abbreviations:

-- = not applicable
FOD = frequency of detection (# detects / # samples)
mean = arithmetic mean
SD = standard deviation
MK = Mann-Kendall
NST = no significant trend
DWN = downward trend
UP = upward trend

Notes:

1. All analytical results for VOCs are in µg/L, PFAS are in ng/L, and metals are in mg/L.
2. Trend results are presented for well-analyte pairs sampled in 2024 when at least 7 samples, and 50% detected values, and 25% criteria exceedances in the last six samples are available.
   Perched wells are compared to the Groundwater Surface Water Interface Criteria (GSI) and Residential Drinking Water Criteria (RDW), all other wells are compared to the RDW.
3. Non-detects were assigned a common value less than the minimum detected value, equal to half the minimum reporting limit (RL) in the dataset (USEPA, 2009).
   If half the minimum RL was greater than the minimum detected value, then half the minimum detect was assigned.
4. Statistically significant trend defined as having p-value ≤ 0.1, or 90% confidence.
5a. MK Trend results for datasets with fewer than 8 samples may not be reliable and should be treated with caution.

Reference:

USEPA. 2009. Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities. Unified Guidance. EPA/530/R-09/007, 2009.

Figures

MW-21-142
MW-14-63
MW-12-02
P2-MW-01
P2-MW-03
MW-16-80
MW-20-126
TW-15-12
MW-23-161
MW-23-162
MW-13-44
MW-13-43
P2-SB-20
P2-SB-03
MW-13-42
PW-14-02
MW-13-45
MW-15-73
MW-20-127
MW-22-155
MW-23-163
MW-19-118S/D
MW-14-59
LMW-12-03S/D
MW-16-85
MW-22-153
MW-19-125
LMW-14-15D
MW-22-157
MW-14-58R
MW-16-82
MW-20-128
MW-16-84
MW-16-83
MW-17-87
MW-19-116
LMW-12-08
MW-14-60
MW-22-156
MW-19-117
MW-17-86
PMW-02
MW-12-05R
PMW-01
MW-19-115
LMW-14-13D
LMW-12-07
P2-MW-04
MW-15-72
MW-14-61
P2-SB-37
MW-19-120
MW-12-09
LMW-12-01
MW-14-57
MW-12-06
MW-19-124
MW-14-56
LMW-12-05
P2-SB-06
LMW-15-16D
MW-16-81
MW-14-62
LMW-14-12D
MW-21-139
MW-20-130
MW-20-129
MW-19-121
MW-19-122
MW-12-18
MW-14-55
TW-14-02
MW-14-54
PW-14-01
MW-16-74
MW-16-78
MW-16-76
MW-12-01
MW-19-123
MW-21-140
MW-16-77
MW-16-75
MW-12-07
MW-12-08
P2-MW-02
MW-13-51
MW-13-52
MW-13-50
MW-13-53
MW-01(2)
MWBP-10-UST5-6

LEGEND

- LNAPL MONITORING WELL
- PERCHED ZONE MONITORING WELL
- DEEP OVERBURDEN MONITORING WELL
- WEATHERED BEDROCK MONITORING WELL
- BEDROCK MONITORING WELL
- APPROXIMATE EXTENT LNAPL
- PLANT 2
- PLANT 3
- PLANT 6 (Dashed Where Sold)

NOTE:

THE PARKING LOT SOUTH OF PLANT 2 IS PART OF THE PLANT 6 RCRA FACILITY BUT CONSIDERED BY RACER TRUST TO BE PART OF LANSING PART 2 INDUSTRIAL LAND

-AERIAL IMAGERY FROM ESRI ARCGIS ONLINE DATED JULY 2023.

0 200 400
SCALE IN FEET

RACER TRUST
PLANTS 2, 3 & 6
LANSING, MICHIGAN

SUMMARY OF PLANT 2 MONITORING WELL LOCATIONS

ARCADIS

FIGURE
1A

CITY: Novi DIV: ENV PIC: J. BARRETT PM: T. LINDER TM: K. HUNT TR: PROJECT NUMBER: 30267725 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
T:\RACER\Lansing_BuffaloData\MXDs\2024 Annual Groundwater Monitoring Report\2024 Annual Groundwater Monitoring Report.aprx PLOTTED: 3/26/2025 2:25 PM BY: KPullen



RACER TRUST
PLANTS 2, 3 & 6
LANSING, MICHIGAN

SUMMARY OF PLANT 6 MONITORING WELL LOCATIONS

ARCADIS

FIGURE
1B

CITY: Novi DIV: ENV PIC: J. BARRETT PM: T. LINDER TM: K. HUNT TR: PROJECT NUMBER: 30267725 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
T:\RACER\Lansing_BuffaloData\MXDs\2024 Annual Groundwater Monitoring Report\2024 Annual Groundwater Monitoring Report.aprx PLOTTED: 3/26/2025 2:28 PM BY: KPullen

CITY: KNOXVILLE DIV: ENV DB: A.SMITH PIC: J. Barrett PM: T. LINDER TM: K. HUNT TR: PROJECT NUMBER: 30267725 COORDINATE SYSTEM:
T:\RACER\Lansing_BuffaloData\MXDs\2024 Annual Groundwater Monitoring Report\2024 Annual Groundwater Monitoring Report.apx PLOTTED: 3/26/2025 3:00 PM BY: KPullen

MW-04-04(3)
MW-13-39B
MW-91-4
MW-88-1
MW-19-113
MW-18-97
MW-18-98
MW-19-112
MW-02-04(3)
MW-13-40
MW-02-03(3)
MW-12-04
MW-18-99
MW-19-110
MW-04-03(3)
MW-04-02(3)
MW-18-89
MW-13-38
MW-18-90
MW-91-3
MW-13-41
MW-02-02(3)
MW-93-1
MW-18-103
MW-18-102
MW-19-107
MW-06
UNK-15
MW-91-2R
LMW-12-09
MW-05
MW-23
MW-18-92
MW-18-101
MW-13-37
MW-01(3)
UNK-11
MW-18-93
MW-18-88
MW-19-108
CH-14-RO
MW-22
MW-18-91
MW-18-105
MW-18-104
MW-19-111
P3-SB-28
LMW-12-10
MW-18-94
MW-18-95
MW-18-96
MW-19-114
MW-18-106
MW-18-100
MW-13-26
MW-15-71
MW-02-01(3)
MW-12-20
MW-04-01(3)
MW-13-30
MW-13-22
MW-13-28
MW-13-24
MW-13-23
MW-13-27
MW-91-5
MW-12-21
MW-14-64
TW-15-11
PW-14-03R
MW-19-119S/D
MW-13-32
MW-13-29
MW-13-25
MW-13-48
MW-13-49
MW-91-6
MW-13-47
MW-13-34
MW-13-46
MW-12-03

NOTE:

-AERIAL IMAGERY FROM ESRI ARCGIS ONLINE DATED JULY 2023.

LEGEND

- LNAPL MONITORING WELL
- PERCHED ZONE MONITORING WELL
- DEEP OVERBURDEN MONITORING WELL
- WEATHERED BEDROCK MONITORING
- BEDROCK MONITORING WELL
- APPROXIMATE EXTENT LNAPL
- PLANT 2
- PLANT 3
- PLANT 6 (Dashed Where Sold)

0 275 550
SCALE IN FEET

RACER TRUST
PLANTS 2, 3 & 6
LANSING, MICHIGAN

SUMMARY OF PLANT 3 MONITORING WELL LOCATIONS

ARCADIS

FIGURE
1C

MW-23-161
4/8/2024: 52
8/19/2024: 43
11/12/2024: 49

MW-23-162
4/8/2024: 28
8/19/2024: 29
11/12/2024: 31

MW-22-155
4/8/2024: 153
8/19/2024: 151
11/13/2024: 159

MW-23-163
4/8/2024: 11
8/19/2024: 11
11/12/2024: 10

MW-14-59
5/17/2024: 8

MW-14-60
5/17/2024: 10

MW-22-157
4/8/2024: 61
11/12/2024: 41

MW-14-58R
4/8/2024: 280
11/12/2024: 220

MW-03-05

P2-MW-04
5/16/2024: 29

MW-22-153
4/8/2024: 79
11/12/2024: 48

MW-14-57

MW-03-06

MW-02-02(6)
5/23/2024: 30

MW-22-156
4/8/2024: 116
11/12/2024: 63

MW-12-09

MW-14-62
5/15/2024: 112

MW-21-139

NOTES:

APPROXIMATE EXTENT OF PERCHED 1,4-DIOXANE PLUME IS BASED ON THE ANALYTICAL DATA FROM THE MOST RECENT SAMPLING EVENT.

ANALYTICAL DATA FROM 2024 IS POSTED.

SAMPLES ANALYZED VIA EPA METHOD 8260B SIM.

ALL ANALYTICAL DATA IS IN ug/L.

DW: EGLE Part 201 RESIDENTIAL DRINKING WATER CRITERIA.

EGLE: MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

EPA: UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

ug/L: MICROGRAMS PER LITER.

-AERIAL IMAGERY FROM ESRI ARCGIS ONLINE DATED JULY 2023.

LEGEND

- PERCHED ZONE MONITORING WELL
- WELLS SAMPLED AND 1,4-DIOXANE EXCEEDS DW CRITERIA (7.2 ug/L)
- WELLS SAMPLED AND 1,4-DIOXANE DOES NOT EXCEED DW CRITERIA
- APPROXIMATE LNAPL EXTENT
- PERCHED 1,4-DIOXANE IMPACTS > DW CRITERIA (7.2 ug/L)
- PLANT 2
- PLANT 3
- PLANT 6 (Dashed Where Sold)

0 400 800
SCALE IN FEET

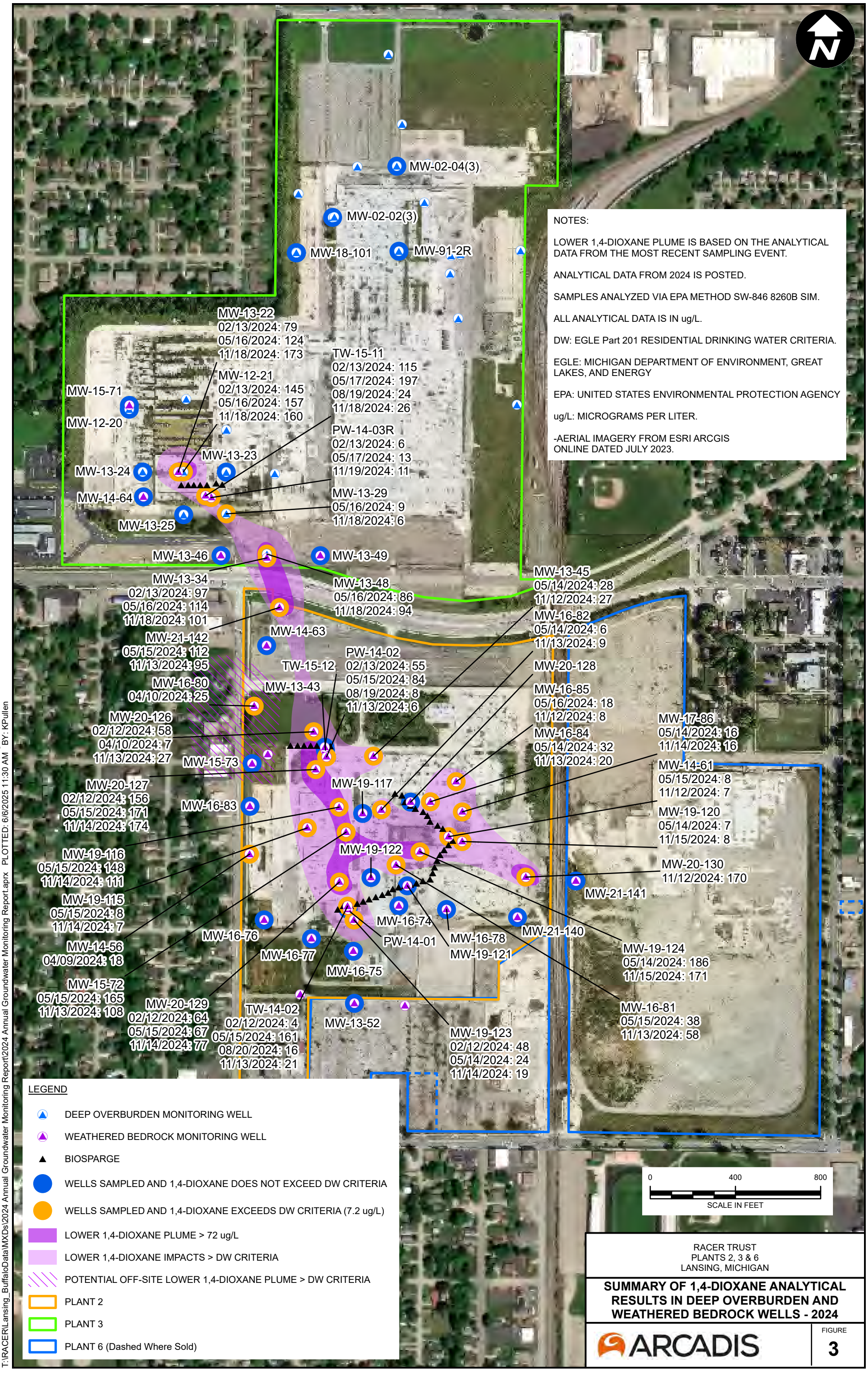
RACER TRUST
PLANTS 2, 3 & 6
LANSING, MICHIGAN

SUMMARY OF 1,4-DIOXANE ANALYTICAL RESULTS PERCHED WELLS - 2024

ARCADIS

FIGURE
2

CITY: Novi DIV: ENV PIC: J. BARRETT PM: T. LINDER TM: K. HUNT TR: PROJECT NUMBER: 30267725 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
T:_ENVRACER\Lansing_BuffaloData\MXDs\2024 Annual Groundwater Monitoring Report\2024 Annual Groundwater Monitoring Report.aprx PLOTTED: 4/28/2025 10:36 AM BY: VDavis



RACER TRUST
PLANTS 2, 3 & 6
LANSING, MICHIGAN

SUMMARY OF 1,4-DIOXANE ANALYTICAL RESULTS IN DEEP OVERBURDEN AND WEATHERED BEDROCK WELLS - 2024

ARCADIS

FIGURE
3

CITY: Novi DIV: ENV PIC: J. BARRETT PM: T. LINDER TM: K. HUNT TR: PROJECT NUMBER: 30267725 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
T:\RACER\Lansing_BuffaloData\MXDs\2024 Annual Groundwater Monitoring Report\2024 Annual Groundwater Monitoring Report.aprx PLOTTED: 6/6/2025 11:30 AM BY: KPullen

TWP-90-05
11/14/2024: 0.43

MW-13-38
5/24/2024: 0.83

MW-13-37
5/20/2024: 0.41

MW-91-5
5/20/2024: ND (<0.20)

MW-13-28
5/20/2024: 4.0

MW-19-119S/D
5/20/2024: 0.41 (S)
5/20/2024: 0.40 (D)

MW-13-47
5/24/2024: 1.2

TWP-90-04
11/14/2024: 0.35

MW-91-6
5/24/2024: 0.70

MW-12-02
5/24/2024: 0.92

MW-13-44
5/20/2024: 3.6

MW-19-118S/D
4/9/2024: 0.73 (S)
5/20/2024: ND (<0.20) (D)

MW-19-125
5/20/2024: 0.20

MW-04-06R
5/22/2024: ND (<1)

MW-04-01(6)
5/22/2024: ND (<1)

MW-17-87
4/09/2024: 3.4

TWP-90-03
11/14/2024: 0.12

MW-12-06
5/24/2024: 0.11J

MW-04-04R
5/22/2024: ND (<1)

MW-12-01
5/24/2024: ND (<0.20)

MW-12-05R
5/20/2024: 0.71

MW-13-50
5/23/2024: ND (<1)

NOTES:

THE PARKING LOT SOUTH OF PLANT 2 IS PART OF THE PLANT 6 RCRA FACILITY BUT CONSIDERED BY RACER TRUST TO BE PART OF LANSING PLANT 2 INDUSTRIAL LAND

BEDROCK 1,4-DIOXANE PLUME IS BASED ON THE ANALYTICAL DATA FROM THE MOST RECENT SAMPLING EVENT.

ANALYTICAL DATA FROM 2024 IS POSTED.

SAMPLES ANALYZED VIA EPA METHOD 522 OR EPA METHOD SW-846 8260B SIM.

ALL ANALYTICAL DATA IS IN ug/L.

DW: EGLE Part 201 RESIDENTIAL DRINKING WATER CRITERIA.

EGLE: MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

EPA: UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

ND: NON-DETECT

J: COMPOUND WAS POSITIVELY IDENTIFIED, BUT THE ASSOCIATED NUMERICAL VALUE IS AN ESTIMATED CONCENTRATION ONLY.

ug/L: MICROGRAMS PER LITER.

-AERIAL IMAGERY FROM ESRI ARCGIS ONLINE DATED JULY 2023.

LEGEND

- MUNICIPAL WELLS
- BEDROCK MONITORING WELLS
- WELLS SAMPLED AND 1,4-DIOXANE DOES NOT EXCEED DW CRITERIA
- LOWER 1,4-DIOXANE PLUME > 72 ug/L
- LOWER 1,4-DIOXANE IMPACTS > DW CRITERIA (7.2 ug/L)
- POTENTIAL OFF-SITE DEEP 1,4-DIOXANE PLUME > DW CRITERIA
- PLANT 2
- PLANT 3
- PLANT 6 (Dashed Where Sold)
- Plant 6 - Sold

0 400 800
SCALE IN FEET

RACER TRUST
PLANTS 2, 3 & 6
LANSING, MICHIGAN

SUMMARY OF 1,4-DIOXANE ANALYTICAL RESULTS IN BEDROCK WELLS BENEATH THE LOWER 1,4-DIOXANE IMPACTS - 2024

ARCADIS

FIGURE
4

CITY: Novi DIV: ENV PIC: J. BARRETT PM: T. LINDER TM: K. HUNT TR: PROJECT NUMBER: 30267725 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
T:_ENVRACER\Lansing_BuffaloData\MXDs\2024 Annual Groundwater Monitoring Report\2024 Annual Groundwater Monitoring Report.aprx PLOTTED: 4/18/2025 10:34 AM BY: VDavis

NOTES:

APPROXIMATE EXTENT OF PERCHED VOC'S PLUME AND LNAPL IMPACTS SHOWN ARE BASED ON SEVERAL INVESTIGATIONS PREVIOUSLY COMPLETED AT THE SITE.

ANALYTICAL DATA FROM 2024 IS POSTED.

SAMPLES ANALYZED VIA EPA METHOD SW5030C/8260C.

ALL ANALYTICAL DATA IS IN ug/L.

DW: EGLE Part 201 RESIDENTIAL DRINKING WATER CRITERIA.

GSI: EGLE Part 201 GROUNDWATER SURFACE WATER INTERFACE CRITERIA.

EGLE: MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

EPA: UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

ug/L: MICROGRAMS PER LITER.

VC: VINYL CHLORIDE

VOC: VOLATILE ORGANIC COMPOUND

1,1-DCE: 1,1-DICHLOROETHENE

1,2,4-TMB: 1,2,4-TRIMETHYLBENZENE

EBENZ: ETHYLBENZENE

BENZ: BENZENE

LNAPL: LIGHT NON-AQUEOUS PHASE LIQUID

NAPTH: NAPTHALENE

T.XYL: TOTAL XYLENES

-AERIAL IMAGERY FROM ESRI ARCGIS ONLINE DATED JULY 2023.

MW-13-41

MW-05(3)

MW-18-88

MW-13-22

MW-12-21

MW-13-48

MW-13-34

MW-14-59
5/17/2024: 1,1-DCE: 16

PW-14-02

MW-22-155

MW-22-157

MW-14-58R

MW-22-153

MW-22-156
4/8/2024: 1,1-DCE: 20
8/19/2024: 1,1-DCE: 20
11/12/2024: 1,1-DCE: 15

MW-12-09

MW-16-84

MW-16-85

MW-14-60

MW-17-86

MW-14-61

MW-15-72

MW-19-120

MW-16-81

MW-14-62

MW-14-55

TW-14-02

MW-12-18

MW-14-54
5/16/2024: 1,2,4-TMB: 310
BENZ: 460
EBENZ: 690
NAPTH: 130
T. XYL: 1,210

MW-01(2)

MW-22-152

MW-22-154

MW-20-132

MW-20-131

MW-04-05(6)

MW-03-05

MW-03-06
5/23/2024: VC: 11

MW-02-02(6)

MWBP-12-UST1-4

0 400 800
SCALE IN FEET

LEGEND

- SOIL VAPOR MONITORING POINT
- BEDROCK MONITORING WELL
- DEEP OVERBURDEN MONITORING WELL
- PERCHED ZONE MONITORING WELL
- WEATHERED BEDROCK MONITORING WELL
- WELLS SAMPLED AND VOC'S EXCEED DW AND/OR GSI
- WELLS SAMPLED AND VOC'S DO NOT EXCEED DW OR GSI
- APPROXIMATE EXTENT LNAPL
- EXTENT VOC'S IN PERCHED ZONE> DW CRITERIA
- PLANT 2
- PLANT 3
- PLANT 6 (Dashed Where Sold)
- Plant 6 - Sold

RACER TRUST
PLANTS 2, 3 & 6
LANSING, MICHIGAN

SUMMARY OF VOC ANALYTICAL RESULTS - 2024

ARCADIS

FIGURE
5

CITY: Novi DIV: ENV PIC: J. BARRETT PM: T. LINDER TM: K. HUNT TR: PROJECT NUMBER: 30267725 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
T:_ENV\RACER\Lansing_BuffaloData\MXDs\2024 Annual Groundwater Monitoring Report\2024 Annual Groundwater Monitoring Report.aprx PLOTTED: 4/17/2025 12:17 PM BY: VDavis

MW-02-04(3)
5/21/2024: Arsenic (total): 0.083
5/21/2024: Arsenic (dissolved): 0.014
5/21/2024: Lead (total): 0.005
5/21/2024: Vanadium (total): 0.009

MW-91-2R
5/22/2024: Arsenic (total): 0.011

MW-18-88

CH-14-RO
5/22/2024: Chromium III (total): 8.75
5/22/2024: Chromium VI: 8.35

MW-13-32
5/22/2024: Nickel (total): 0.400

MW-14-66

MW-12-13

MW-14-67

MW-13-36R
5/23/2024: Vanadium (total): 0.008

MWBP-11-UST1-4

MWBP-12-UST1-4

MWBP-10-UST5-6
5/23/2024: Arsenic (total): 0.044

0 400 800
SCALE IN FEET

NOTES:

APPROXIMATE EXTENT OF LNAPL IMPACTS SHOWN ARE BASED ON SEVERAL INVESTIGATIONS PREVIOUSLY COMPLETED AT THE SITE.

ANALYTICAL DATA FROM 2024 IS POSTED.

SAMPLES ANALYZED VIA EPA METHOD 200.8 AND ALL ANALYTICAL DATA IS IN MILLIGRAMS PER LITER (mg/L).

DW: EGLE Part 201 RESIDENTIAL DRINKING WATER CRITERIA.

GSI: EGLE PART 201 GROUNDWATER SURFACE WATER INTERFACE CRITERIA

EPA: UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

LNAPL: LIGHT NON-AQUEOUS PHASE LIQUID

-AERIAL IMAGERY FROM ESRI ARCGIS ONLINE DATED JULY 2023.

LEGEND

- BEDROCK MONITORING WELL
- DEEP OVERBURDEN MONITORING WELL
- PERCHED ZONE MONITORING WELL
- WEATHERED BEDROCK MONITORING WELL
- WELLS SAMPLED AND METALS EXCEED DW AND/OR GSI
- WELLS SAMPLED AND METALS DO NOT EXCEED DW OR GSI CRITERIA
- APPROXIMATE EXTENT LNAPL
- PLANT 2
- PLANT 3
- PLANT 6 (Dashed Where Sold)

RACER TRUST
PLANTS 2, 3 & 6
LANSING, MICHIGAN

SUMMARY OF METALS ANALYTICAL RESULTS - 2024

ARCADIS

FIGURE
6

CITY: Novi DIV: ENV PIC: J. BARRETT PM: T. LINDER TM: K. HUNT TR: PROJECT NUMBER: 30267725 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
T:\RACER\Lansing_BuffaloData\MXDs\2024 Annual Groundwater Monitoring Report\2024 Annual Groundwater Monitoring Report.aprx PLOTTED: 4/9/2025 1:58 PM BY: KPullen

MW-18-98
5/20/2024: 140
11/19/2024: 77

MW-19-113

MW-18-89
5/20/2024: 120

MW-18-90
5/20/2024: 920

MW-18-97

MW-02-04(3)

MW-18-99
5/20/2024: 47
11/20/2024: 75

MW-19-112

UNK-15
5/21/2024: 1,000
11/19/2024: 1,300

MW-18-88
5/22/2024: 220
11/19/2024: 310

MW-19-107
MW-18-101
MW-18-92
MW-19-108

MW-91-2R

MW-23

MW-18-93

MW-18-102

MW-18-103

MW-18-104

MW-19-111

MW-18-94

MW-18-105

CH-14-RO
5/22/2024: 11,000

MW-19-114

MW-18-100

MW-18-91
5/21/2024: 34

MW-18-95
5/21/2024: 56
11/19/2024: 42

MW-20-132
5/23/2024: 11
11/19/2024: 19

MW-14-60
5/17/2024: 50

MW-22-151

MW-14-62
5/15/2024: 48

MW-14-59

MW-12-10R

MW-22-152

MW-22-150

MW-04-05(6)

MW-04-06R

MW-20-131

MW-12-11

MW-12-12
5/22/2024: 19
11/14/2024: 24

MW-14-58R

MW-15-72

MW-14-61

P2-MW-04
5/16/2024: 24

MW-14-70

MW-12-13

MW-12-09

MW-16-81

MW-14-67
5/23/2024: 18

MW-22-149

MW-14-56
4/9/2024: 15

MW-20-130

MW-04-04R

MW-12-18

MW-21-139
5/16/2024: 1,700
11/12/2024: 1,900

MW-13-36R
5/23/2024: 35
11/14/2024: 46

P2-MW-02

MW-22-148

P6-SB-07
5/23/2024: 30

MW-21-133

MW-22-147

MW-22-146

MW-21-134

MW-22-160

MW-21-135

MW-22-144

MW-22-143

MW-21-136

MW-22-159: DRY

MW-22-158

MW-21-137

MW-21-138

MW-22-145
2/12/2024: 15
5/22/2024: 14
8/20/2024: 18
11/13/2024: <3.9

NOTES:

APPROXIMATE EXTENT OF IMPACTS/PLUMES SHOWN ARE BASED ON SEVERAL INVESTIGATIONS PREVIOUSLY COMPLETED AT THE SITE.

ANALYTICAL DATA FROM 2024 IS POSTED.

SAMPLES ANALYZED VIA EPA METHOD 537 MODIFIED.

ALL ANALYTICAL DATA IS IN ng/L.

DW: EGLE Part 201 RESIDENTIAL DRINKING WATER CRITERIA.

GSI: EGLE PART 201 GROUNDWATER SURFACE WATER INTERFACE CRITERION.

EGLE: MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

EPA: UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

PFOS: PERFLUOROOCTANE SULFONIC ACID

ng/L: NANOGRAM PER LITER.

-AERIAL IMAGERY FROM ESRI ARCGIS ONLINE DATED JULY 2023.

LEGEND

- BEDROCK MONITORING WELL
- DEEP OVERBURDEN MONITORING WELL
- PERCHED ZONE MONITORING WELL
- WEATHERED BEDROCK MONITORING WELL
- WELLS SAMPLED AND PFOS EXCEEDS GSI CRITERIA (12ng/L) AND/OR DW CRITERIA (16 ng/L)
- WELLS SAMPLED AND PFOS DOES NOT EXCEED GSI OR DW CRITERIA
- PFOS IN PERCHED GROUNDWATER (>12 ng/L)
- PLANT 2
- PLANT 3
- PLANT 6 (Dashed Where Sold)

0 500 1,000
SCALE IN FEET

RACER TRUST
PLANTS 2, 3 & 6
LANSING, MICHIGAN

SUMMARY OF PFOS ANALYTICAL RESULTS - 2024

ARCADIS

FIGURE 7

CITY: Novi DIV: ENV PIC: J. BARRETT PM: T. LINDER TM: K. HUNT TR: PROJECT NUMBER: 30267725 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
T:\RACER\Lansing_BuffaloData\MXDs\2024 Annual Groundwater Monitoring Report\2024 Annual Groundwater Monitoring Report.aprx PLOTTED: 6/6/2025 2:24 PM BY: KPullen

MW-18-89
5/20/2024: 13
MW-18-90
5/20/2024: 14
UNK-15
5/21/2024: 26
11/19/2024: 21
MW-19-113
MW-18-98
MW-18-97
MW-02-04(3)
MW-19-112
MW-18-99
MW-19-107
MW-18-101
MW-18-92
MW-19-108
MW-19-111
MW-91-2R
MW-23
MW-18-91
MW-18-94
MW-18-95
CH-14-RO
5/22/2024: 130
MW-18-100
MW-18-93
MW-18-102
MW-18-103
MW-18-104
MW-18-105
MW-19-114
MW-18-88
5/22/2024: 7.4
11/19/2024: 9.7
MW-20-132
5/23/2024: 24
11/19/2024: 44
MW-22-152
MW-22-151
2/14/2024: 6.9
5/23/2024: 7.6
8/21/2024: 8.6
11/19/2024:15
MW-12-10R
MW-04-06R
MW-20-131
5/22/2024: 31
11/19/2024: 32
MW-14-59
5/17/2024: 15
MW-22-150
MW-12-12
5/22/2024: 98
11/14/2024: 150
MW-12-11
MW-14-58R
4/8/2024: 12
MW-14-60
5/17/2024: 29
P2-MW-04
5/16/2024: 19
MW-04-05(6)
5/23/2024: 32
MW-14-70
5/22/2024: 32
MW-12-09
5/16/2024: 19
MW-15-72
MW-12-13
5/23/2024: 8.6
11/18/2024: 12
MW-16-81
MW-14-56
4/9/2024: 8.2
MW-14-61
MW-04-04R
MW-22-149
MW-12-18
MW-21-139
5/16/2024: 79
11/12/2024: 130
MW-20-130
11/12/2024: 9.7
MW-14-67
5/23/2024: 18
MW-13-36R
5/23/2024: 56
11/14/2024: 53
MW-14-62
5/15/2024: 62
P2-MW-02
MW-21-133
5/22/2024: 55
11/18/2024: 81
MW-22-148
MW-22-147
P6-SB-07
5/23/2024: 610
MW-21-134
5/22/2024: 32
11/18/2024: 53
MW-22-146
MW-22-160
MW-21-135
5/22/2024: 57
MW-22-159: DRY
MW-21-136
MW-21-137
MW-21-138
MW-22-158
MW-22-144
2/14/2024: 14
5/22/2024: 17
8/20/2024: 15
11/13/2024: 11
MW-22-143
2/12/2024: 5.5
5/22/2024: 8.7
8/20/2024: 6.6
11/15/2024: 6.4
MW-22-145
2/12/2024: 37
5/22/2024: 29
8/20/2024: 34
11/13/2024: 22

0 500 1,000
SCALE IN FEET

NOTES:

APPROXIMATE EXTENT OF IMPACTS/PLUMES SHOWN ARE BASED ON SEVERAL INVESTIGATIONS PREVIOUSLY COMPLETED AT THE SITE.

ANALYTICAL DATA FROM 2024 IS POSTED

SAMPLES ANALYZED VIA EPA METHOD 537 MODIFIED.

ALL ANALYTICAL DATA IS IN ng/L.

DW: EGLE Part 201 RESIDENTIAL DRINKING WATER CRITERIA.

EGLE: MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

EPA: UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

GSI: EGLE Part 201 GROUNDWATER SURFACE WATER INTERFACE CRITERIA

PFOA: PERFLUOROOCTANOIC ACID

ng/L: NANOGRAM PER LITER.

-AERIAL IMAGERY FROM ESRI ARCGIS ONLINE DATED JULY 2023.

LEGEND

- BEDROCK MONITORING WELL
- DEEP OVERBURDEN MONITORING WELL
- PERCHED ZONE MONITORING WELL
- WEATHERED BEDROCK MONITORING WELL
- WELLS SAMPLED AND PFOA EXCEEDS DW CRITERIA (8 ng/L) AND/OR GSI CRITERIA (170 ng/L)
- WELL SAMPLED AND PFOA DOES NOT EXCEED DW OR GSI
- PFOA IN PERCHED GROUNDWATER (> 8 ng/L)
- PLANT 2
- PLANT 3
- PLANT 6 (Dashed Where Sold)

RACER TRUST
PLANTS 2, 3 & 6
LANSING, MICHIGAN

SUMMARY OF PFOA ANALYTICAL RESULTS - 2024

ARCADIS

FIGURE
8

CITY: Novi DIV: ENV PIC: J. BARRETT PM: T. LINDER TM: K. HUNT TR: PROJECT NUMBER: 30267725 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
T:_ENV\RACER\Lansing_BuffaloData\MXDs\2024 Annual Groundwater Monitoring Report.aprx PLOTTED: 4/28/2025 10:36 AM BY: VDavis

MW-19-113
MW-18-97
MW-18-98
MW-02-04(3)
MW-19-112
MW-18-99
MW-18-90
MW-19-107
MW-18-89
UNK-15
MW-18-103
MW-18-101
MW-23
MW-18-102
MW-18-92
MW-91-2R
MW-18-93
MW-19-108
MW-18-88
MW-18-104
CH-14-RO
MW-19-111
MW-18-105
MW-18-91
MW-18-94
MW-18-95
MW-19-114
MW-18-100
MW-20-132
5/23/2024: 4.8
11/19/2024: 8.4
MW-22-151
MW-22-152
MW-12-10R
MW-22-150
MW-20-131
MW-14-59
MW-14-62
5/15/2024: 8.5
MW-04-06R
MW-12-12
5/22/2024: 3.9
11/14/2024: 6.7
MW-14-60
MW-04-05(6)
MW-14-70
P2-MW-04
MW-14-58R
MW-15-72
MW-12-11
MW-12-13
MW-12-09
MW-16-81
MW-14-67
MW-14-56
MW-22-149
MW-12-18
MW-04-04R
MW-20-130
MW-13-36R
5/23/2024: 11
11/14/2024: 14
MW-14-61
P2-MW-02
MW-22-148
MW-21-133
MW-22-147
P6-SB-07
5/23/2024: 81
MW-21-139
5/16/2024: 15
11/12/2024:23
MW-22-146
MW-21-134
MW-22-160
MW-21-135
MW-22-144
MW-22-145
MW-22-143
MW-22-159: DRY
MW-21-136
MW-21-137
MW-21-138
MW-22-158

NOTES:

ANALYTICAL DATA FROM 2024 IS POSTED.

SAMPLES ANALYZED VIA EPA METHOD 537 MODIFIED.

ALL ANALYTICAL DATA IS IN ng/L.

DW: EGLE Part 201 RESIDENTIAL DRINKING WATER CRITERIA.

EGLE: MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

EPA: UNITES STATES ENVIRONMENTAL PROTECTION AGENCY

GSI: EGLE Part 201 GROUNDWATER SURFACE WATER INTERFACE CRITERIA

PFNA: PERFLUORONONANOIC ACID

ng/L: NANOGRAM PER LITER.

-AERIAL IMAGERY FROM ESRI ARCGIS ONLINE DATED JULY 2023.

LEGEND

- BEDROCK MONITORING WELL
- DEEP OVERBURDEN MONITORING WELL
- PERCHED ZONE MONITORING WELL
- WEATHERED BEDROCK MONITORING WELL
- WELLS SAMPLED AND PFNA EXCEEDS DW CRITERIA (6ng/L) AND/OR GSI CRITERIA (30 ng/L)
- WELLS SAMPLED AND PFNA DOES NOT EXCEED DW OR GSI CRITERIA
- PLANT 2
- PLANT 3
- PLANT 6 (Dashed Where Sold)

0 500 1,000
SCALE IN FEET

RACER TRUST
PLANTS 2, 3 & 6
LANSING, MICHIGAN

SUMMARY OF PFNA ANALYTICAL RESULTS - 2024

ARCADIS

FIGURE 9

CITY: Novi DIV: ENV PIC: J. BARRETT PM: T. LINDER TM: K. HUNT TR: PROJECT NUMBER: 30267725 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
T:\RACER\Lansing_BuffaloData\MXDs\2024 Annual Groundwater Monitoring Report\2024 Annual Groundwater Monitoring Report.aprx PLOTTED: 3/27/2025 10:14 AM BY: KPullen

P2-MH-2				
Date:	2/8/2024	4/10/2024	7/2/2024	10/3/2024
PFOS:	10.0	8.4	**19.0**	**14.8**
PFOA:	11.0	10.0	16.0	14.5
PFBS:	<4.6	2.9 J	< 4.1	6.0
PFHxS:	3.1 J	3.2 J	4.2	3.6
PFNA:	1.3 J	1.2 J	2.5 J	< 2.0

P2-MH-W				
Date:	2/8/2024	4/10/2024	7/2/2024	10/3/2024
PFOS:	<4.2	<4.1	< 3.9	< 1.9
PFOA:	<4.2	<4.1	2.2 J	< 2.1
PFBS:	1.0 J	<4.1	< 3.9	< 1.8
PFHxS:	1.8 J	1.3 J	1.7 J	< 1.9
PFNA:	<4.2	<4.1	< 3.9	< 2.1

NOTES:
-UTILITY LOCATIONS ARE APPROXIMATE
-ARROWS DENOTE FLOW DIRECTION
-INVERT FLOWS WERE OBSERVED IN MANHOLES ASSOCIATED WITH STORM SEWER SAMPLING
-AERIAL IMAGERY FROM ESRI ARCGIS ONLINE DATED JULY 2023.
-PFAS CONCENTRATIONS SHOWN IN ng/L

-BOLD/HIGHLIGHT = MANHOLE EXCEEDS SURFACE WATER CRITERIA

PFOS RULE 57 SURFACE WATER CRITERIA: 12 ng/L
PFOA RULE 57 SURFACE WATER CRITERIA: 170 ng/L
PFBS RULE 57 SURFACE WATER CRITERIA: 670,000 ng/L
PFHxS RULE 57 SURFACE WATER CRITERIA: 219ng/L
PFNA RULE 57 SURFACE WATER CRITERIA: 30 ng/L

PFAS: PERFLUOROOCTANOIC ACID
PFOS: PERFLUOROOCTANE SULFONIC ACID
PFOA: PERFLUOROOCTANOIC ACID
PFBS PERFLUOROBUTANE SULFONIC ACID
PFHxS: PERFLUOROHEXANESULFONIC ACID
PFNA: PERFLUORONONANOIC ACID
ng/L: NANOGRAMS PER LITER
J: CONSTITUENT IDENTIFIED BELOW SAMPLE REPORTING LIMIT
<: COMPOUND NOT DETECTED

SAMPLES ANALYZED VIA EPA 537M – MI LIST OF 28

ADJUSTMENT TYPE
- FILLED STRUCTURE
- CAPPED STRUCTURE
- COULD NOT LOCATE STRUCTURE
- CATCH BASIN REMAINING OPEN

STRUCTURES & SAMPLE POINTS
- MANHOLE
- DRY MANHOLE

PLANT 2 DRAINAGE NETWORKS
- NORTHEAST (ABANDONED)
- CENTRAL (PARTIALLY ABANDONED)
- SOUTHWEST (ABANDONED)

OBSERVED FLOW (October 2024)
- NO FLOW
- TRICKLE (~1 GPM OR LESS)
- LITTLE (~1-3 GPM)
- MODERATE (~3 GPM OR GREATER)

PLANT BOUNDARIES
- PLANT 2
- PLANT 3
- PLANT 6

0 150 300
SCALE IN FEET

RACER TRUST
PLANTS 2, 3 & 6
LANSING, MICHIGAN

PLANT 2 PFAS STORM SEWER SAMPLING ANALYTICAL RESULTS

ARCADIS

FIGURE
10

CITY: Novi DIV: ENV PIC: J. BARRETT PM: T. LINDER TM: A. LORENZ TR: J. SALING PROJECT NUMBER: 30267725 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
T:_ENVIRACER\Lansing_BuffaloData\MXDs\2024 P2 P3 P6 Storm Sewer Modifications Completion Report\2024 PFAS Sampling Figs.aprx PLOTTED: 3/11/2025 3:42 PM BY: VDavis

P3-MH-284				
Date:	2/8/2024	4/10/2024	7/2/2024	10/3/2024
PFOS:	6.2	2.6 J	8.8	**26.4**
PFOA:	<4.1	<4.2	1.7 J	< 3.9
PFBS:	2.8 J	1.7 J	< 4.0	< 3.4
PFHxS:	<4.1	<4.2	1.5 J	< 3.5
PFNA:	<4.1	<4.2	< 4.0	< 3.9

NOTES:
-UTILITY LOCATIONS ARE APPROXIMATE
-ARROWS DENOTE FLOW DIRECTION
-INVERT FLOWS WERE OBSERVED IN MANHOLES ASSOCIATED WITH STORM SEWER SAMPLING
-AERIAL IMAGERY FROM ESRI ARCGIS ONLINE DATED JULY 2023.
-PFAS CONCENTRATIONS SHOWN IN ng/L

-BOLD/HIGHLIGHT = MANHOLE EXCEEDS SURFACE WATER CRITERIA

PFOS SURFACE WATER CRITERIA: 12 ng/L
PFOA SURFACE WATER CRITERIA: 170 ng/L
PFBS SURFACE WATER CRITERIA: 670,000 ng/L
PFHxS SURFACE WATER CRITERIA: 219ng/L
PFNA SURFACE WATER CRITERIA: 30 ng/L

PFAS: PERFLUOROOCTANOIC ACID
PFOS: PERFLUOROOCTANE SULFONIC ACID
PFOA: PERFLUOROOCTANOIC ACID
PFBS PERFLUOROBUTANE SULFONIC ACID
PFHxS: PERFLUOROHEXANESULFONIC ACID
PFNA: PERFLUORONONANOIC ACID
ng/L: NANOGRAMS PER LITER
J: CONSTITUENT IDENTIFIED BELOW SAMPLE REPORTING LIMIT
<: COMPOUND NOT DETECTED

SAMPLES ANALYZED VIA EPA 537M – MI LIST OF 28

Willow Street
P3-MH-290
P3-MH-284
P3-MH-NE
Western CLSM Monolith
Eastern CLSM Monolith
P3-MH-308
P3-MH-1-1
P3-MH-2-1N
P3-MH-2-1
P3-MH-2-2
P3-MH-1-7
P3-MH-1-10
P3-MH-1-9
P3-MH-2-5
Saginaw Street
Maxar, Microsoft

- FILLED STRUCTURE
- CAPPED STRUCTURE
- CLSM MONOLITH
- BULKHEAD
- DISCHARGE OPEN WITH CUSTOM POUR

STRUCTURES & SAMPLE POINTS
- MANHOLE
- MANHOLE COULD NOT BE LOCATED
- CATCH BASIN REMAINING OPEN
- CATCH BASIN COULD NOT BE LOCATED

PLANT 3 DRAINAGE NETWORKS
- COUNTY MAIN (ACTIVE)
- EAST MAIN (ABANDONED)
- WEST MAIN (ABANDONED)
- OTHER (ACTIVE)

OBSERVED FLOW (October 2024)
- NO FLOW
- TRICKLE (~1 GPM OR LESS)
- LITTLE (~1-3 GPM)
- MODERATE (~3 GPM OR GREATER)

PLANT BOUNDARIES
- PLANT 2
- PLANT 3

0 200 400
SCALE IN FEET

RACER TRUST
PLANTS 2, 3 & 6
LANSING, MICHIGAN

PLANT 3 PFAS STORM SEWER SAMPLING ANALYTICAL RESULTS

ARCADIS

FIGURE 11

CITY: NOVI DIV: ENV PIC: J. BARRETT PM: T. LINDER TM: A. LORENZ TR: J. SALING PROJECT NUMBER: 30287726 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
T:\ ENV\RACER\Lansing_Buffalo\Data\MXDs\2024 P2 P3 P6 Storm Sewer Modifications Completion Report\2024 PFAS Sampling Figs.aprx PLOTTED: 3/11/2025 3:42 PM BY: VDavis

Osborn-MH-1				
Date:	2/8/2024	4/10/2024	7/2/2024	10/3/2024
PFOS:	**16.0 [18.0]**	**17.0 [15.0]**	**16.0 [20.0]**	**12.6 [14.9]**
PFOA:	24.0 [24.0]	28.0 [28.0]	30.0 [29.0]	23.2 [23.6]
PFBS:	<4.3 [2.4 J]	1.7 J [1.2 J]	2.2 J [1.7 J]	< 1.9 [< 1.8]
PFHxS:	2.5 J [2.8 J]	2.0 J [2.2 J]	2.1 J [2.8 J]	< 1.9 [< 1.9]
PFNA:	4.5 [4.0]	5.4 [4.5]	5.5 [5.7]	2.7 [3.2]

NOTES:
-UTILITY LOCATIONS ARE APPROXIMATE
-ARROWS DENOTE FLOW DIRECTION
-INVERT FLOWS WERE OBSERVED IN MANHOLES ASSOCIATED WITH STORM SEWER SAMPLING
-AERIAL IMAGERY FROM ESRI ARCGIS ONLINE DATED JULY 2023.
-PFAS CONCENTRATIONS SHOWN IN ng/L

-BOLD/HIGHLIGHT = MANHOLE EXCEEDS SURFACE WATER CRITERIA

PFOS RULE 57 SURFACE WATER CRITERIA: 12 ng/L
PFOA RULE 57 SURFACE WATER CRITERIA: 170 ng/L
PFBS RULE 57 SURFACE WATER CRITERIA: 670,000 ng/L
PFHxS RULE 57 SURFACE WATER CRITERIA: 219ng/L
PFNA RULE 57 SURFACE WATER CRITERIA: 30 ng/L

PFAS: PERFLUOROOCTANOIC ACID
PFOS: PERFLUOROOCTANE SULFONIC ACID
PFOA: PERFLUOROOCTANOIC ACID
PFBS PERFLUOROBUTANE SULFONIC ACID
PFHxS: PERFLUOROHEXANESULFONIC ACID
PFNA: PERFLUORONONANOIC ACID
ng/L: NANOGRAMS PER LITER
J: CONSTITUENT IDENTIFIED BELOW SAMPLE REPORTING LIMIT
<: COMPOUND NOT DETECTED

SAMPLES ANALYZED VIA EPA 537M – MI LIST OF 28

MichAve-MH-3				
Date:	2/8/2024	4/10/2024	7/2/2024	10/3/2024
PFOS:	1.3 J	2.5 J	4.8	4.7
PFOA:	2.6 J	5.1	6.0	8
PFBS:	2.4 J	3.2 J	< 4.2	3.1
PFHxS:	1.9 J	3.5 J	7.0	5
PFNA:	<4.2	<4.2	< 4.2	< 2.1

Verlinden-MH-5				
Date:	2/8/2024	4/10/2024	7/2/2024	10/3/2024
PFOS:	8.6	6.7	12.0	11.6
PFOA:	27.0	27.0	29.0	39.9
PFBS:	3.7 J	4.3	< 3.9	4.3
PFHxS:	1.8 J	1.9 J	1.9 J	2.2
PFNA:	2.7 J	2.0 J	3.5 J	3.6

Stanley-MH-1
Osborn-MH-1
Osborn-MH-3
Osborn-MH-2
OSBORN ROAD
Outfall-013
Osborn-MH-4
Osborn-CB-2
P6-MH-13
Verlinden-MH-1
Verlinden-MH-2
P6-MH-14
N VERLINDEN AVENUE
Verlinden-MH-3
Verlinden-MH-4
Verlinden-MH-5
ESC-2
MichAve-MH-3
W MICHIGAN AVENUE

BULKHEAD
FILLED STRUCTURE
CAPPED STRUCTURE

STRUCTURES & SAMPLE POINTS
MANHOLE
MANHOLE COULD NOT BE LOCATED
CATCH BASIN REMAINING OPEN
DRY MANHOLE

PLANT BOUNDARIES
PLANT 2
PLANT 6

PLANT 6 DRAINAGE NETWORKS
STORM LINE
SANITARY LINE

OBSERVED FLOW (October 2024)
NO FLOW
TRICKLE (~1 GPM OR LESS)
LITTLE (~1-3 GPM)
MODERATE (~3 GPM OR GREATER)
SEWER LINE CUT AND CAPPED AT PROPERTY LINE DURING 2014 DEMOLITION

0 150 300
SCALE IN FEET

RACER TRUST
PLANTS 2, 3 & 6
LANSING, MICHIGAN

PLANT 6 PFAS STORM SEWER SAMPLING ANALYTICAL RESULTS

ARCADIS

FIGURE
12

CITY: Novi DIV: ENV PIC: J. BARRETT PM: T. LINDER TM: A. LORENZ TR: J. SALING PROJECT NUMBER: 30267725 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
T:_ENVRACER\Lansing_BuffaloData\MXDs\2024 P2 P3 P6 Storm Sewer Modifications Completion Report\2024 PFAS Sampling Figs.aprx PLOTTED: 3/11/2025 3:42 PM BY: VDavis

NOTES:
1. DEPTH TO WATER MEASUREMENTS WERE TAKEN MAY 13 AND LNAPL WELL MEASUREMENTS WERE TAKEN MAY 21. ALL MEASUREMENTS WERE COLLECTED FROM THE TOP OF THE WELL CASINGS.
2. WELL LABELING:
WELL NAME
WELL SCREEN (FT BGS)
GROUNDWATER ELEVATION (FT AMSL)
3. * = LNAPL MONITORING WELLS CORRECTED FOR PRESENCE OF LNAPL
4. **MONITORING WELL NOT UTILIZED IN CONTOURING CALCULATIONS. GROUNDWATER CONTOURS ONLY CONSIDER MONITORING WELLS INSTALLED < 27 FEET BELOW GRADE

BGS: BELOW GROUND SURFACE
FT: FEET
LNAPL: LIGHT NON-AQUEOUS PHASE LIQUID
AMSL: ABOVE MEAN SEA LEVEL
NM: NOT MEASURED

AERIAL IMAGERY FROM ESRI ARCGIS ONLINE DATED JULY 2023

LEGEND

- PERCHED ZONE MONITORING WELL
- LNAPL MONITORING WELL
- GROUNDWATER ELEVATION CONTOUR (FT AMSL)
- INFERRED GROUNDWATER ELEVATION CONTOUR (FT AMSL)
- PLANT 2
- PLANT 3
- PLANT 6 (Dashed Where Sold)

RACER TRUST
LANSING, MICHIGAN
PLANTS 2, 3 & 6

PERCHED POTENTIOMETRIC SURFACE CONTOUR MAP - PLANTS 2 & 6 MAY 2024

ARCADIS

FIGURE 13

0 250 500
SCALE IN FEET

CITY: KNOXVILLE DIV: ENV DB: A.SMITH PIC: J. Barrett PM: T. LINDER TM: K. HUNT TR: PROJECT NUMBER: 30267725 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
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MW-19-113**
16-21
836.56

MW-18-98
7-12
857.48

MW-19-112
9-14
856.28

MW-18-99
9-14
859.69

MW-18-89
7-12
861.06

MW-18-90
15-20
857.63

MW-05(3)
10-15
859.46

UNK-15
11-16
859.07

LMW-12-09
3-8
859.93*

UNK-11
6.5-11.5
859.88

MW-18-88
6-11
859.45

MW-19-107
23-28
857.14

MW-18-92
23-28
858.29

CH-14-RO
7-12
860.31

MW-19-108
23-28
859.29

MW-18-91
7-12
860.77

MW-19-111
20-25
853.57

P3-SB-28
8-13
861.23

LMW-12-10**
14-19
854.63*

MW-18-95
4.5-9.5
858.33

MW-18-103
5-10
857.49

MW-18-102
10-15
855.59

MW-18-105
6-11
858.08

MW-18-104
5-10
857.80

MW-19-114
6-11
859.75

MW-18-106**
5-10
864.19

MW-18-100
8-13
854.42

MW-13-32
5-10
854.08

858
859
860
857
856
854
855
858
857
856
855
859

LEGEND

- PERCHED ZONE MONITORING WELL
- LNAPL MONITORING WELL
- GROUNDWATER ELEVATION CONTOUR (FT AMSL)
- INFERRED GROUNDWATER ELEVATION CONTOUR (FT AMSL)
- MUNICIPAL SANITARY
- SANITARY LINE
- PLANT 2
- PLANT 3
- PLANT 6 (Dashed Where Sold)

NOTES:
1. DEPTH TO WATER MEASUREMENTS WERE TAKEN MAY 13 AND LNAPL WELL TAKEN MAY 21. ALL MEASUREMENTS WERE COLLECTED FROM THE TOP OF THE WELL CASINGS.

2. WELL LABELING:
WELL NAME
WELL SCREEN (FT. BGS)
GROUNDWATER ELEVATION (FT AMSL)

3. * = LNAPL MONITORING WELLS CORRECTED FOR PRESENCE OF LNAPL

4. **MONITORING WELL NOT UTILIZED IN CONTOURING CALCULATIONS. GROUNDWATER CONTOURS ONLY CONSIDER MONITORING WELLS INSTALLED < 27 FEET BELOW GRADE

BGS: BELOW GROUND SURFACE
FT: FEET
NS: NOT SURVEYED
LNAPL: LIGHT NON-AQUEOUS PHASE LIQUID
AMSL: ABOVE MEAN SEA LEVEL

AERIAL IMAGERY FROM ESRI ARCGIS ONLINE DATED JULY 2023

0 250 500
SCALE IN FEET

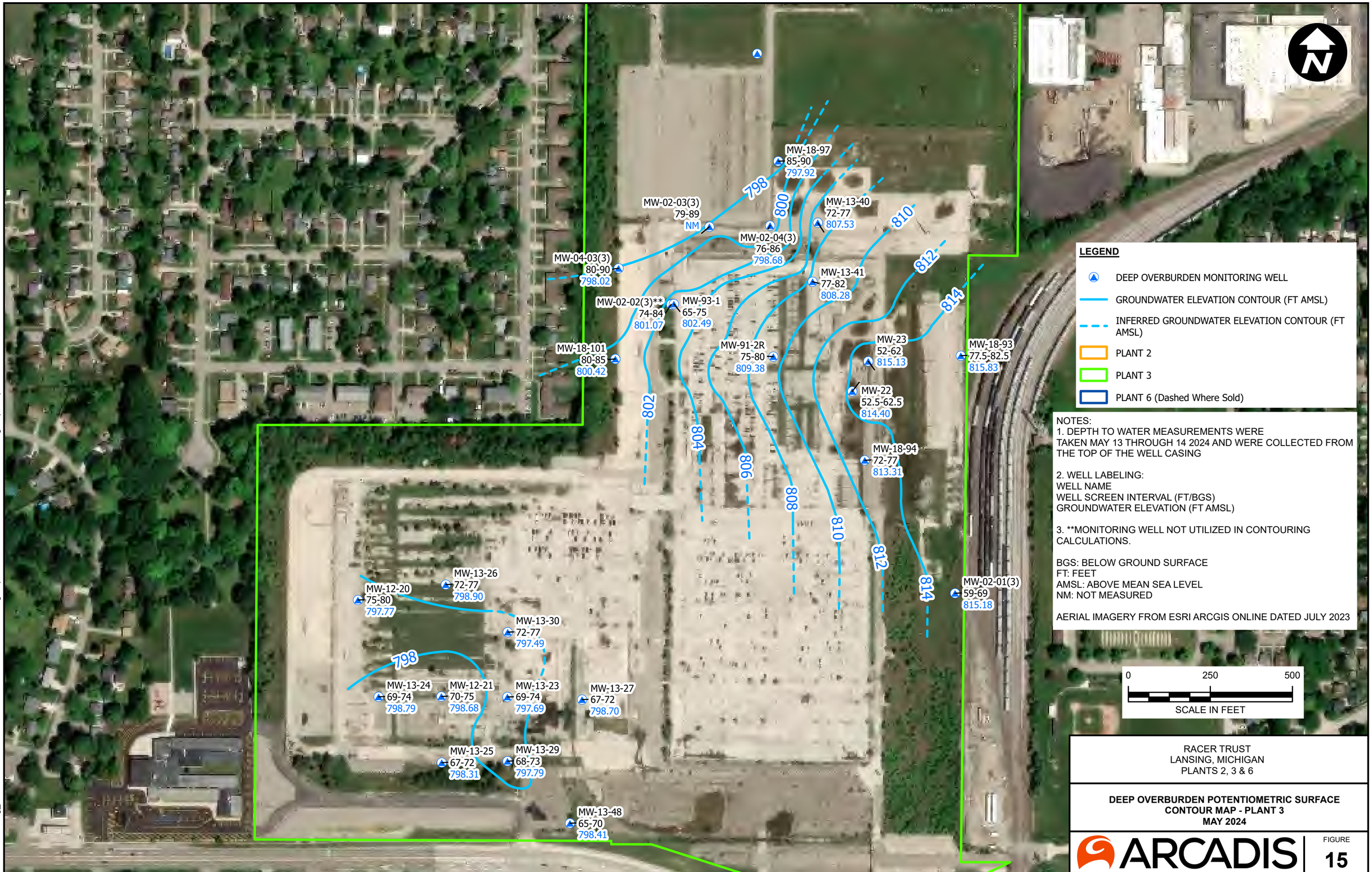
RACER TRUST
LANSING, MICHIGAN
PLANTS 2, 3 & 6

PERCHED POTENTIOMETRIC SURFACE CONTOUR MAP - PLANT 3 MAY 2024

ARCADIS

FIGURE
14

CITY: KNOXVILLE DIV: ENV DB: A.SMITH PIC: J. Barrett PM: T. Linder TM: K. HUNT TR: PROJECT NUMBER: 30267725 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
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RACER TRUST
LANSING, MICHIGAN
PLANTS 2, 3 & 6

DEEP OVERBURDEN POTENTIOMETRIC SURFACE CONTOUR MAP - PLANT 3 MAY 2024

ARCADIS

FIGURE 15

CITY: KNOXVILLE DIV: ENV DB: A.SMITH PIC: J. BARRETT PM: T. LINDER TM: K. HUNT TR: PROJECT NUMBER: 30267725 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
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MW-13-39B
97-112
796.82/791.86

MW-91-4
116-132.5
796.96/796.96*

MW-88-1(B)
103.5-140
794.10/794.10

MW-12-04
77-100
794.97/794.97*

MW-04-02(3)
126-136
797.16/797.16*

MW-13-38
107-124
796.16/792.67

MW-91-3
105-117
795.19/791.66

GRAND RIVER FORMATION

MW-13-37
97-112
796.36/789.34

SAGINAW FORMATION

MW-04-01(3)
813.20/NM (DNU)

MW-91-5
112.5-128
797.28/797.28*

MW-13-28
99-115.5
794.67/794.67*

MW-91-6
82-98
789.79/789.79*

MW-13-47
99-119
788.52/788.52*

MW-12-02
87-110
785.63/785.63*

MW-12-03
57-80
797.22/780.94

MW-13-44
96-115
787.64/781.81

MW-04-06R
74-99.5
796.17/785.13

MW-19-125
100-115
786.79/781.24

MW-17-87
100-112
786.25/780.77

MW-12-05R
100-112
787.49/781.41

MW-12-06
80.6-99.5
790.86/779.88

MW-04-01(6)
78-88
796.45/781.47

MW-04-04R
82-110
797.29/785.35

MW-12-01
87-110
788.50/779.02

MW-13-50
85-107
789.44/777.73

793 797 789 791 787 785 783 781 779

NOTES:

MONITORING WELLS LOCATED IN THE SAGINAW FORMATION ARE CORRECTED FOR AN AVERAGE
VERTICAL GRADIENT OF 0.32 (FT/FT DOWNWARD)

* MONITORING WELLS LOCATED IN GRAND RIVER FORMATION NOT CORRECTED FOR VERTICAL GRADIENT

APPROXIMATE EXTENT OF IMPACTS/PLUMES SHOWN ARE BASED ON SEVERAL INVESTIGATIONS PREVIOUSLY COMPLETED AT THE SITE

(B) - BASELINE WELL (DEEPEST WELL)

793.41/789.50 - UNCORRECTED GW ELEV / CORRECTED GW ELEV

DEPTH TO WATER MEASUREMENTS WERE TAKEN MAY 13, 2024 AND WERE COLLECTED FROM THE TOP OF THE WELL CASING

ELEVATION IS GIVEN IN FEET ABOVE MEAN SEA LEVEL (FT AMSL)

DW: DRINKING WATER
ELEV: ELEVATION
FT: FEET
GW: GROUNDWATER
NU: GROUNDWATER ELEVATION NOT USED IN CONTOUR MAP CREATION. WELL MW-04-01(3) HAS HISTORICALLY MEASURED HIGH RELATIVE TO OTHER BEDROCK WELLS
NM: NOT MEASURED
µg/L: MICROGRAMS PER LITER

AERIAL IMAGERY FROM ESRI ARCGIS ONLINE DATED JULY 2023

LEGEND

- WEATHERED BEDROCK/BEDROCK MONITORING WELL
- APPROXIMATE LOCATION OF GRAND RIVER/SAGINAW FORMATION GEOLOGIC CONTACT
- GROUNDWATER ELEVATION CONTOUR (FT AMSL)
- INFERRED GROUNDWATER ELEVATION CONTOUR (FT AMSL)
- PLANT 2
- PLANT 3
- PLANT 6 (Dashed Where Sold)
- Plant 6 - Sold
- LOWER 1,4-DIOXANE IMPACTS > DW CRITERIA
- LOWER 1,4-DIOXANE PLUME > 72 ug/L

0 400 800
SCALE IN FEET

RACER TRUST
PLANTS 2, 3 & 6
LANSING, MICHIGAN

**BEDROCK POTENTIOMETRIC SURFACE CONTOUR MAP
MAY 2024**

ARCADIS

FIGURE
16

CITY: KNOXVILLE DIV: ENV DB: A.SMITH PIC: J. BARRETT PM: T. LINDER TM: K. HUNT TR: PROJECT NUMBER: 30267725 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
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NOTES:

MANN-KENDALL TREND ANALYSIS CONDUCTED WHEN AT LEAST SEVEN SAMPLES, 50% DETECTED VALUES, AND 25% EXCEEDANCES ARE AVAILABLE. SIGNIFICANCE OF TRENDS EVALUATED AT 90% CONFIDENCE.

- ALL DATA COLLECTED THROUGH 2024 SHOWN.
- ANALYTICAL DATA COMPARED AGAINST EGLE Part 201 RESIDENTIAL DRINKING WATER CRITERIA AND/OR EGLE Part 201 GROUNDWATER SURFACE WATER INTERFACE CRITERIA DURING TREND ANALYSIS REVIEW.

ANALYTICAL DATA AVAILABLE IN TABLE 2. TREND RESULTS SUMMARIZED IN TABLE 7.

1,1-DCE: 1,1-DICHLOROETHENE
1,4-D: 1,4-DIOXANE
As: ARSENIC
DW: DRINKING WATER
BENZ: BENZENE
EBENZ: ETHYLBENZENE
EGLE: MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY
I. BENZ: ISOPROPYL BENZENE
LNAPL: LIGHT NON-AQUEOUS PHASE LIQUID
m&p-XYL: m&p-XYLENES
o-XYL: o-XYLENES
PFHxS: PERFLUOROHEXANESULFONIC ACID
PFNA: PERFLUORONONANOIC ACID
PFOA: PERFLUOROOCTANOIC ACID
PFOS: PERFLUOROOCTANE SULFONIC ACID
VC: VINYL CHLORIDE
VOCs: VOLATILE ORGANIC COMPOUNDS

MW-19-113
MW-18-98
PFNA: Increasing trend
PFOA: Decreasing trend
PFOS: No trend
MW-18-103
PFHxS: Increasing trend
MW-18-89
MW-18-90
MW-19-112
MW-18-99
MW-19-110
MW-19-107
MW-18-92
MW-19-108
MW-19-111
UNK-15
CH-14-RO
MW-05(3)
MW-18-102
MW-18-104
MW-18-105
MW-18-91
P3-SB-28
MW-18-95
MW-18-96
MW-19-114
MW-18-88
PFOA: Increasing trend
PFOS: Increasing trend
MW-18-100
MW-13-32
MW-14-59
PFOA: Increasing trend
1,1-DCE: Decreasing trend
1,4-D: Decreasing trend
MW-14-60
PFOS: Increasing trend
PFOA: Increasing trend
1,4-D: Decreasing trend
VC: No trend
MW-22-151
MW-23-162
MW-23-161
MW-23-163
MW-22-155
MW-14-58R
MW-22-153
MW-22-157
1,4-D: Increasing trend
MW-22-156
MW-12-09
PFOA: Increasing trend
MW-12-18
MW-14-54
BENZ: Increasing trend
EBENZ: Increasing trend
I. BENZ: Increasing trend
m&p-XYL: Increasing trend
o-XYL: No trend
MW-22-152
MW-22-150
MW-12-10R
MW-20-132
MW-04-05(6)
MW-20-131
MW-22-154
MW-12-12
PFOA: Increasing trend
PFOS: Decreasing trend
PFNA: Decreasing trend
MW-14-70
MW-03-05
MW-14-66
MW-12-13
PFOA: Increasing trend
P2-MW-04
MW-14-57
MW-14-62
MW-21-139
MW-03-06
MW-02-02(6)
MW-14-55
MW-13-36R
MW-22-149
MW-14-67
PFOA: Increasing trend
P2-MW-02
MW-22-148
P6-SB-07
MW-21-133
MW-22-147
MW-22-144
PFOA: Increasing trend
MWBP-12-UST1-4
MW-01(2)
MWBP-11-UST1-4
MW-22-146
MW-21-134
MW-21-135
MW-22-160
MWBP-10-UST5-6
As: Increasing trend
MW-22-143
MW-22-145
MW-21-136
MW-22-158
MW-21-137
MW-21-138
MW-22-159

LEGEND

- INCREASING TREND OBSERVED
- DECREASING OR NO SIGNIFICANT TREND OBSERVED
- DOES NOT MEET CRITERIA FOR TREND ANALYSIS
- APPROXIMATE LNAPL EXTENT
- POTENTIAL OFF-SITE LOWER 1,4-DIOXANE PLUME > DW CRITERIA (7.2 ug/L)
- VOCs IN PERCHED GROUNDWATER > DW CRITERIA
- PFOS IN PERCHED GROUNDWATER > (12 ng/L)
- PFOA IN PERCHED GROUNDWATER (> 8 ng/L)
- 1,4-DIOXANE IN PERCHED GROUNDWATER > DW CRITERIA (7.2 ug/L)
- PLANT 2
- PLANT 3
- PLANT 6 (Dashed Where Sold)
- Plant 6 - Sold

0 500 1,000
SCALE IN FEET

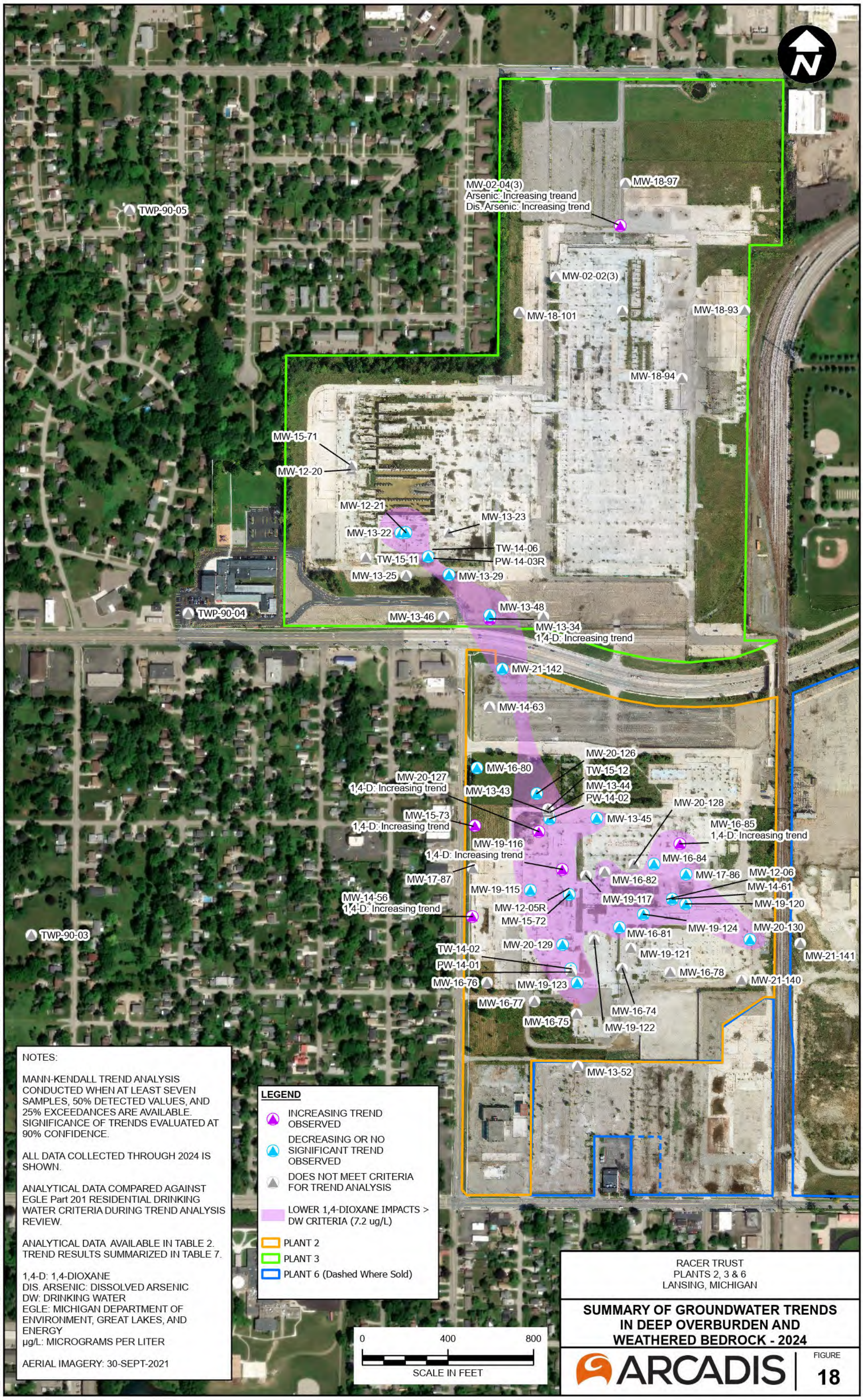
RACER TRUST
PLANTS 2, 3 & 6
LANSING, MICHIGAN

SUMMARY OF TRENDS IN PERCHED GROUNDWATER - 2024

ARCADIS

FIGURE
17

CITY: KNOXVILLE DIV: ENV PIC: J. BARRETT PM: T. LINDER TM: K. HUNT CITY: NOVI PROJECT NUMBER: 30267725 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
T:_ENV\RACER\Lansing_BuffaloData\MXDs\2024 Annual Groundwater Monitoring Report.aprx PLOTTED: 4/28/2025 10:36 AM BY: VDavis



CITY: KNOXVILLE DIV: ENV PIC: J. BARRETT PM: T. LINDER CITY: NOVI TM: K. HUNT PROJECT NUMBER: 30214036 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
T:_ENVRACER\Lansing_BuffaloData\MXDs\2024 Annual Groundwater Monitoring Report\2024 Annual Groundwater Monitoring Report.aprx PLOTTED: 4/18/2025 10:34 AM BY: VDavis

Appendix A

Lansing Township Municipal Well Sampling Laboratory Analytical Reports

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Tiffany Linder
Arcadis US Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Generated 12/5/2024 10:18:28 AM

JOB DESCRIPTION

Racer Lansing

JOB NUMBER

240-215109-1

Eurofins Cleveland
180 S. Van Buren Avenue
Barberton OH 44203

See page two for job notes and contact information.

myEOL

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

Authorization



Generated
12/5/2024 10:18:28 AM

Authorized for release by
Michael DelMonico, Project Manager I
Michael.DelMonico@et.eurofinsus.com
(330)497-9396

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Definitions/Glossary

Client: Arcadis US Inc.
Job ID: 240-215109-1
Project/Site: Racer Lansing

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job Narrative
240-215109-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 11/15/2024 9:40 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 3.6°C.

GC/MS Semi VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Method Summary

Client: Arcadis US Inc.
Project/Site: Racer Lansing

Job ID: 240-215109-1

Method	Method Description	Protocol	Laboratory
522	1,4 Dioxane (GC/MS SIM)	EPA	EET BUR
522	Solid-Phase Extraction (SPE)	EPA	EET BUR

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

EET BUR = Eurofins Burlington, 530 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Sample Summary

Client: Arcadis US Inc.
Project/Site: Racer Lansing

Job ID: 240-215109-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-215109-1	TWP-90-04_111424	Water	11/14/24 08:30	11/15/24 09:40
240-215109-2	FB-01_111424	Water	11/14/24 09:05	11/15/24 09:40
240-215109-3	DUP-01_111424	Water	11/14/24 00:00	11/15/24 09:40
240-215109-4	TWP-90-05_111424	Water	11/14/24 08:45	11/15/24 09:40
240-215109-5	TWP-90-03_111424	Water	11/14/24 09:00	11/15/24 09:40

Detection Summary

Client: Arcadis US Inc.
Project/Site: Racer Lansing

Job ID: 240-215109-1

Client Sample ID: TWP-90-04_111424 — Lab Sample ID: 240-215109-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	0.35		0.20	0.061	ug/L	1		522	Total/NA

Client Sample ID: FB-01_111424 — Lab Sample ID: 240-215109-2

No Detections.

Client Sample ID: DUP-01_111424 — Lab Sample ID: 240-215109-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	0.31		0.20	0.061	ug/L	1		522	Total/NA

Client Sample ID: TWP-90-05_111424 — Lab Sample ID: 240-215109-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	0.43		0.20	0.061	ug/L	1		522	Total/NA

Client Sample ID: TWP-90-03_111424 — Lab Sample ID: 240-215109-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	0.12	J	0.20	0.061	ug/L	1		522	Total/NA

This Detection Summary does not include radiochemical test results.

Client: Arcadis US Inc.
Project/Site: Racer Lansing

Job ID: 240-215109-1

Client Sample ID: TWP-90-04_111424
Date Collected: 11/14/24 08:30
Date Received: 11/15/24 09:40

Lab Sample ID: 240-215109-1
Matrix: Water

Method: EPA 522 - 1,4 Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.35		0.20	0.061	ug/L		12/02/24 12:30	12/04/24 13:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*81*		*46 - 130*	*12/02/24 12:30*	*12/04/24 13:47*	*1*

Client: Arcadis US Inc.
Project/Site: Racer Lansing

Job ID: 240-215109-1

Client Sample ID: FB-01_111424
Date Collected: 11/14/24 09:05
Date Received: 11/15/24 09:40

Lab Sample ID: 240-215109-2
Matrix: Water

Method: EPA 522 - 1,4 Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.20	U	0.20	0.061	ug/L		12/02/24 12:30	12/04/24 14:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*88*		*46 - 130*	*12/02/24 12:30*	*12/04/24 14:00*	*1*

Client: Arcadis US Inc.
Project/Site: Racer Lansing

Job ID: 240-215109-1

Client Sample ID: DUP-01_111424
Date Collected: 11/14/24 00:00
Date Received: 11/15/24 09:40

Lab Sample ID: 240-215109-3
Matrix: Water

Method: EPA 522 - 1,4 Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.31		0.20	0.061	ug/L		12/02/24 12:30	12/04/24 14:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*84*		*46 - 130*	*12/02/24 12:30*	*12/04/24 14:14*	*1*

Client: Arcadis US Inc.
Project/Site: Racer Lansing

Job ID: 240-215109-1

Client Sample ID: TWP-90-05_111424
Date Collected: 11/14/24 08:45
Date Received: 11/15/24 09:40

Lab Sample ID: 240-215109-4
Matrix: Water

Method: EPA 522 - 1,4 Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.43		0.20	0.061	ug/L		12/02/24 12:30	12/04/24 14:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*79*		*46 - 130*	*12/02/24 12:30*	*12/04/24 14:28*	*1*

Client: Arcadis US Inc.
Project/Site: Racer Lansing

Job ID: 240-215109-1

Client Sample ID: TWP-90-03_111424
Date Collected: 11/14/24 09:00
Date Received: 11/15/24 09:40

Lab Sample ID: 240-215109-5
Matrix: Water

Method: EPA 522 - 1,4 Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.12	J	0.20	0.061	ug/L		12/02/24 12:30	12/04/24 14:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*83*		*46 - 130*	*12/02/24 12:30*	*12/04/24 14:41*	*1*

Surrogate Summary

Client: Arcadis US Inc.
Project/Site: Racer Lansing

Job ID: 240-215109-1

Method: 522 - 1,4 Dioxane (GC/MS SIM)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)							
		DXE							
Lab Sample ID	Client Sample ID	(46-130)							
240-215109-1	TWP-90-04_111424	81							
240-215109-2	FB-01_111424	88							
240-215109-3	DUP-01_111424	84							
240-215109-4	TWP-90-05_111424	79							
240-215109-5	TWP-90-03_111424	83							
LCS 200-211550/2-A	Lab Control Sample	84							
LCSD 200-211550/3-A	Lab Control Sample Dup	86							
MB 200-211550/1-A	Method Blank	90							

Surrogate Legend

DXE = 1,4-Dioxane-d8 (Surr)

Client: Arcadis US Inc.
Project/Site: Racer Lansing

Job ID: 240-215109-1

Method: 522 - 1,4 Dioxane (GC/MS SIM)

Lab Sample ID: MB 200-211550/1-A
Matrix: Water
Analysis Batch: 211660

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 211550

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.20	U	0.20	0.061	ug/L		12/02/24 12:30	12/04/24 13:33	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*90*		*46 - 130*	*12/02/24 12:30*	*12/04/24 13:33*	*1*

Lab Sample ID: LCS 200-211550/2-A
Matrix: Water
Analysis Batch: 211660

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 211550

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
1,4-Dioxane			8.00	7.70		ug/L		96	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,4-Dioxane-d8 (Surr)	*84*		*46 - 130*

Lab Sample ID: LCSD 200-211550/3-A
Matrix: Water
Analysis Batch: 211660

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 211550

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,4-Dioxane			8.00	7.65		ug/L		96	70 - 130	1	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,4-Dioxane-d8 (Surr)	*86*		*46 - 130*

QC Association Summary

Client: Arcadis US Inc.
Project/Site: Racer Lansing

Job ID: 240-215109-1

GC/MS Semi VOA

Prep Batch: 211550

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-215109-1	TWP-90-04_111424	Total/NA	Water	522	
240-215109-2	FB-01_111424	Total/NA	Water	522	
240-215109-3	DUP-01_111424	Total/NA	Water	522	
240-215109-4	TWP-90-05_111424	Total/NA	Water	522	
240-215109-5	TWP-90-03_111424	Total/NA	Water	522	
MB 200-211550/1-A	Method Blank	Total/NA	Water	522	
LCS 200-211550/2-A	Lab Control Sample	Total/NA	Water	522	
LCSD 200-211550/3-A	Lab Control Sample Dup	Total/NA	Water	522	

Analysis Batch: 211660

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-215109-1	TWP-90-04_111424	Total/NA	Water	522	211550
240-215109-2	FB-01_111424	Total/NA	Water	522	211550
240-215109-3	DUP-01_111424	Total/NA	Water	522	211550
240-215109-4	TWP-90-05_111424	Total/NA	Water	522	211550
240-215109-5	TWP-90-03_111424	Total/NA	Water	522	211550
MB 200-211550/1-A	Method Blank	Total/NA	Water	522	211550
LCS 200-211550/2-A	Lab Control Sample	Total/NA	Water	522	211550
LCSD 200-211550/3-A	Lab Control Sample Dup	Total/NA	Water	522	211550

Lab Chronicle

Client: Arcadis US Inc.
Project/Site: Racer Lansing

Job ID: 240-215109-1

Client Sample ID: TWP-90-04_111424
Lab Sample ID: 240-215109-1
Date Collected: 11/14/24 08:30
Matrix: Water
Date Received: 11/15/24 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	522			211550	MJW	EET BUR	12/02/24 12:30
Total/NA	Analysis	522		1	211660	A1B	EET BUR	12/04/24 13:47

Client Sample ID: FB-01_111424
Lab Sample ID: 240-215109-2
Date Collected: 11/14/24 09:05
Matrix: Water
Date Received: 11/15/24 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	522			211550	MJW	EET BUR	12/02/24 12:30
Total/NA	Analysis	522		1	211660	A1B	EET BUR	12/04/24 14:00

Client Sample ID: DUP-01_111424
Lab Sample ID: 240-215109-3
Date Collected: 11/14/24 00:00
Matrix: Water
Date Received: 11/15/24 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	522			211550	MJW	EET BUR	12/02/24 12:30
Total/NA	Analysis	522		1	211660	A1B	EET BUR	12/04/24 14:14

Client Sample ID: TWP-90-05_111424
Lab Sample ID: 240-215109-4
Date Collected: 11/14/24 08:45
Matrix: Water
Date Received: 11/15/24 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	522			211550	MJW	EET BUR	12/02/24 12:30
Total/NA	Analysis	522		1	211660	A1B	EET BUR	12/04/24 14:28

Client Sample ID: TWP-90-03_111424
Lab Sample ID: 240-215109-5
Date Collected: 11/14/24 09:00
Matrix: Water
Date Received: 11/15/24 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	522			211550	MJW	EET BUR	12/02/24 12:30
Total/NA	Analysis	522		1	211660	A1B	EET BUR	12/04/24 14:41

Laboratory References:

EET BUR = Eurofins Burlington, 530 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Accreditation/Certification Summary

Client: Arcadis US Inc.
Project/Site: Racer Lansing

Job ID: 240-215109-1

Laboratory: Eurofins Burlington

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
ANAB	Dept. of Defense ELAP	L2336	02-25-26
Connecticut	State	PH-0751	09-30-25
DE Haz. Subst. Cleanup Act (HSCA)	State	N/A	05-19-25
Florida	NELAP	E87467	06-30-25
Minnesota	NELAP	050-999-436	12-31-25
New Hampshire	NELAP	2006	12-18-24
New Jersey	NELAP	VT972	06-30-25
New York	NELAP	10391	03-31-25
Pennsylvania	NELAP	68-00489	04-30-25
Rhode Island	State	LAO00298	12-31-24
US Fish & Wildlife	US Federal Programs	058448	08-01-25
USDA	US Federal Programs	P330-17-00272	12-19-26
Vermont	State	VT4000	02-10-25
Virginia	NELAP	460209	12-14-24
Wisconsin	State	399140830	03-31-25

Eurofins Cleveland
180 S. Van Buren Avenue
Barberton, OH 44203
Phone: 330-497-9396 Fax: 330-497-0772

Chain of Custody Record

3-5 / 3 c

eurofins | Environment Testing

Client Information	Sampler: Bill Gobeli	Lab PM: DelMonico, Michael	Carrier Tracking No(s):	COC No: 240-125813-43871.1
Client Contact: Alex Villhauer	Phone: 810-588-3642	E-Mail: Michael.DelMonico@et.eurofinsus.com	State of Origin:	Page: Page 1 of 1
Company: Arcadis US Inc.	PWSID:	Analysis Requested		Job #:
Address: 120 N. Washington Square Suite 300 (3rd Floor)	Due Date Requested:			Preservation Codes: A - HCL
City: Lansing	TAT Requested (days):			
State, Zip: MI, 48933	Compliance Project: Δ Yes Δ No			
Phone: 810-225-1928(Tel)	PO #: 30214036.0470A			
Email: alex.villhauer@arcadis.com	WO #: Project #: B0064607.2016.00001			Other:
Project Name: Racer Lansing method 522	Project #: 24017406			
Site:	SSOW#:			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	522 - 622- 1,4-Dioxane	Special Instructions/Note:
TWP-90-04_111424	11/14/24	0830	G	Water	N	X	
FB-01_111424	11/14/24	0905	G	Water	N	X	
DUP-01_111424	11/14/24	—	G	Water	N	X	
TWP-90-05_111424	11/14/24	0845	G	Water	N	X	
TWP-90-03_111424	11/14/24	0900	G	Water	N	X	

240-215109 COC

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		11-14-24 1100	Arcadis	MARTIN J SMITH	11-15-24 940	Eurofins
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Eurofins – Cleveland Sample Receipt Form/Narrative **Login # :**
Barberton Facility

Client ArCadis Site Name

Cooler unpacked by:

Cooler Received on 11-15-24 Opened on 11-15-24

FedEx. 1st Grd Exp UPS FAS Waypoint Client Drop Off Eurofins Courier Other

Receipt After-hours Drop-off Date/Time Storage Location

Eurofins Cooler # EC Foam Box Client Cooler Box Other

Packing material used. Bubble Wrap Foam Plastic Bag None Other

COOLANT: Wet Ice Blue Ice Dry Ice Water None

1 *Cooler temperature upon receipt* ☐ *See Multiple Cooler Form*

IR GUN # 17 (CF +0.1 °C) Observed Cooler Temp 3.5 °C Corrected Cooler Temp. 3.6 °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1	Yes	No
-Were the seals on the outside of the cooler(s) signed & dated?	Yes	No NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes	No
-Were tamper/custody seals intact and uncompromised?	Yes	No NA
3 Shippers' packing slip attached to the cooler(s)?	Yes	No
4. Did custody papers accompany the sample(s)?	Yes	No
5 Were the custody papers relinquished & signed in the appropriate place?	Yes	No
6 Was/were the person(s) who collected the samples clearly identified on the COC?	Yes	No
7 Did all bottles arrive in good condition (Unbroken)?	Yes	No
8 Could all bottle labels (ID/Date/Time) be reconciled with the COC?	Yes	No
9 For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)?		
10 Were correct bottle(s) used for the test(s) indicated?	Yes	No
11 Sufficient quantity received to perform indicated analyses?	Yes	No
12. Are these work share samples and all listed on the COC?	Yes	No
If yes, Questions 13-17 have been checked at the originating laboratory		
13 Were all preserved sample(s) at the correct pH upon receipt?	Yes	No NA pH Strip Lot# HC447997
14. Were VOAs on the COC?	Yes	No
15 Were air bubbles >6 mm in any VOA vials? ● ← Larger than this.	Yes	No NA
16 Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #	Yes	No
17 Was a LL Hg or Me Hg trip blank present?	Yes	No

Tests that are not checked for pH by Receiving:

VOAs
Oil and Grease
TOC

Contacted PM Date by via Verbal Voice Mail Other

Concerning

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES ☐ additional next page

Samples processed by:

19 SAMPLE CONDITION

Sample(s) were received after the recommended holding time had expired.

Sample(s) were received in a broken container

Sample(s) were received with bubble >6 mm in diameter (Notify PM)

20. SAMPLE PRESERVATION

Sample(s) were further preserved in the laboratory

Time preserved. Preservative(s) added/Lot number(s).

VOA Sample Preservation - Date/Time VOAs Frozen.

11/15/2024

Login Container Summary Report

240-215109

12/5/2024

Temperature readings _____

Client Sample ID	Lab ID	Container Type	Container pH	Container Temp	Preservation Added	Preservation Lot Number
TWP-90-04_111424	240-215109-A-1	Amber Glass 250mL - hydrochloric acid				
FB-01_111424	240-215109-A-2	Amber Glass 250mL - hydrochloric acid				
DUP-01_111424	240-215109-A-3	Amber Glass 250mL - hydrochloric acid				
TWP-90-05_111424	240-215109-A-4	Amber Glass 250mL - hydrochloric acid				
TWP-90-03_111424	240-215109-A-5	Amber Glass 250mL - hydrochloric acid				

Login Sample Receipt Checklist

Client: Arcadis US Inc.

Job Number: 240-215109-1

Login Number: 215109
List Number: 2
Creator: Barritt, Julian A

List Source: Eurofins Burlington
List Creation: 11/16/24 02:32 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.8ºC
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Appendix B-1

Monitoring Well Sampling Laboratory Analytical Reports

Analytical Laboratory Report

Report ID: S58789.01(01)+QC01
Generated on 02/27/2024

Report to

Attention: Kaitlyn Hunt
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 C:947-777-5215 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Addtional Contacts: Marina Samp, Tiffany Linder, Caitlin Cisco

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S58789.01-S58789.07
Project: 30214036.47B / RACER Lansing GWS
Collected Date(s): 02/13/2024
Submitted Date/Time: 02/15/2024 08:00
Sampled by: Billy Cobern
P.O. #: 30214036.47B

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Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Starred (*) analytes are not NY NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.
Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.
All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.
For a specific list of accredited analytes, please feel free to contact the laboratory or visit https://www.meritlabs.com/certifications.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
N/A	Not Applicable
SW8260B - SIM	SW 846 Method 8260B Revision 2 December 1996 SIMs

Analytical Laboratory Report

Sample Summary (7 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S58789.01	MW-12-21_021324	Groundwater	02/13/24 14:30
S58789.02	PW-14-03R_021324	Groundwater	02/13/24 16:05
S58789.03	AS-19-A06_021324	Groundwater	02/13/24 11:05
S58789.04	MW-13-22_021324	Groundwater	02/13/24 12:40
S58789.05	TW-15-11_021324	Groundwater	02/13/24 14:15
S58789.06	MW-13-34_021324	Groundwater	02/13/24 15:55
S58789.07	DUP-02_021324	Groundwater	02/13/24 00:01

Analytical Laboratory Report

Lab Sample ID: S58789.01
Sample Tag: MW-12-21_021324
Collected Date/Time: 02/13/2024 14:30
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	2.7	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	02/26/24 11:07	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 02/26/24 16:47, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	145	1		ug/L	1	123-91-1	

Lab Sample ID: S58789.02
Sample Tag: PW-14-03R_021324
Collected Date/Time: 02/13/2024 16:05
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	2.7	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	02/26/24 11:07	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 02/26/24 17:12, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	6	1		ug/L	1	123-91-1	

Lab Sample ID: S58789.03
Sample Tag: AS-19-A06_021324
Collected Date/Time: 02/13/2024 11:05
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	2.7	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	02/26/24 11:07	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 02/26/24 17:37, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	Not detected	1		ug/L	1	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S58789.04
Sample Tag: MW-13-22_021324
Collected Date/Time: 02/13/2024 12:40
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	2.7	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	02/26/24 11:07	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 02/26/24 18:02, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	79	1		ug/L	1	123-91-1	

Lab Sample ID: S58789.05
Sample Tag: TW-15-11_021324
Collected Date/Time: 02/13/2024 14:15
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	2.7	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	02/26/24 11:07	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 02/26/24 18:27, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	115	1		ug/L	1	123-91-1	

Lab Sample ID: S58789.06
Sample Tag: MW-13-34_021324
Collected Date/Time: 02/13/2024 15:55
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	2.7	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	02/26/24 11:07	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 02/26/24 18:52, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	97	1		ug/L	1	123-91-1	

Lab Sample ID: S58789.07
Sample Tag: DUP-02_021324
Collected Date/Time: 02/13/2024 00:01
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	2.7	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	02/26/24 11:07	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 02/26/24 19:17, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	77	1		ug/L	1	123-91-1	

Quality Control Report

Report ID: S58789.01(01)+QC01
Generated on 02/27/2024

Report to

Attention: Kaitlyn Hunt
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 C:947-777-5215 FAX:

Report Produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S58789.01-S58789.07
Project: 30214036.47B / RACER Lansing GWS
Submitted Date/Time: 02/15/2024 08:00
Sampled by: Billy Cobern
P.O. #: 30214036.47B

QC Report Sections

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Analysis Summary (Pages 14-20)
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Internal Standards per QC Sample (Page 30)
Batch QC Results (Page 31)

Report Flag Descriptions

*: QC result is outside of indicated control limits
W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.

Barbara Ball
Quality Assurance Manager

QC Report - Analysis Summary

Lab Sample ID: S58789.01
Sample Tag: MW-12-21_021324
Collected Date/Time: 02/13/2024 14:30
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	02/26/24 16:47	240226A9	VS240226W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S58789.02
Sample Tag: PW-14-03R_021324
Collected Date/Time: 02/13/2024 16:05
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	02/26/24 17:12	240226A9	VS240226W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S58789.03
Sample Tag: AS-19-A06_021324
Collected Date/Time: 02/13/2024 11:05
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	02/26/24 17:37	240226A9	VS240226W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S58789.04
Sample Tag: MW-13-22_021324
Collected Date/Time: 02/13/2024 12:40
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	02/26/24 18:02	240226A9	VS240226W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S58789.05
Sample Tag: TW-15-11_021324
Collected Date/Time: 02/13/2024 14:15
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	02/26/24 18:27	240226A9	VS240226W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S58789.06
Sample Tag: MW-13-34_021324
Collected Date/Time: 02/13/2024 15:55
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	02/26/24 18:52	240226A9	VS240226W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S58789.07
Sample Tag: DUP-02_021324
Collected Date/Time: 02/13/2024 00:01
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	02/26/24 19:17	240226A9	VS240226W1	Yes	BLK/LCS/LCSD

QC Report - Prep Batch Summary

Organics - Volatiles, Prep Batch ID: VS240226W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S58789.01	1,4-Dioxane	SW8260B - SIM	02/26/24 16:47	240226A9
S58789.02	1,4-Dioxane	SW8260B - SIM	02/26/24 17:12	240226A9
S58789.03	1,4-Dioxane	SW8260B - SIM	02/26/24 17:37	240226A9
S58789.04	1,4-Dioxane	SW8260B - SIM	02/26/24 18:02	240226A9
S58789.05	1,4-Dioxane	SW8260B - SIM	02/26/24 18:27	240226A9
S58789.06	1,4-Dioxane	SW8260B - SIM	02/26/24 18:52	240226A9
S58789.07	1,4-Dioxane	SW8260B - SIM	02/26/24 19:17	240226A9

Organics - Volatiles, Prep Batch ID: VS240226W1

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240226A9.BLKS26A

Run in Batch: 240226A9, Run Date: 02/26/2024 14:18, Prep Date: 02/26/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
No Surrogates				

Laboratory Control Sample (LCS)

Lab Sample ID: 240226A9.LCSS26A

Run in Batch: 240226A9, Run Date: 02/26/2024 12:14, Prep Date: 02/26/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
No Surrogates				

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240226A9.LCSDS26A, Parent Sample ID: 240226A9.LCSS26A

Run in Batch: 240226A9, Run Date: 02/26/2024 12:39, Prep Date: 02/26/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
No Surrogates				

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S58789.01

Sample Tag: MW-12-21_021324

Collected Date/Time: 02/13/2024 14:30

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 240226A9, Run Date: 02/26/2024 16:47, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**94.7**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S58789.02

Sample Tag: PW-14-03R_021324

Collected Date/Time: 02/13/2024 16:05

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 240226A9, Run Date: 02/26/2024 17:12, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**102.1**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S58789.03

Sample Tag: AS-19-A06_021324

Collected Date/Time: 02/13/2024 11:05

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 240226A9, Run Date: 02/26/2024 17:37, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**99.6**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S58789.04

Sample Tag: MW-13-22_021324

Collected Date/Time: 02/13/2024 12:40

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 240226A9, Run Date: 02/26/2024 18:02, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**99.5**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S58789.05

Sample Tag: TW-15-11_021324

Collected Date/Time: 02/13/2024 14:15

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 240226A9, Run Date: 02/26/2024 18:27, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**95.9**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S58789.06

Sample Tag: MW-13-34_021324

Collected Date/Time: 02/13/2024 15:55

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 240226A9, Run Date: 02/26/2024 18:52, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**98.1**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S58789.07

Sample Tag: DUP-02_021324

Collected Date/Time: 02/13/2024 00:01

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 240226A9, Run Date: 02/26/2024 19:17, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**99.3**	50.0	200.0

QC Report - Internal Standards per QC Sample

Organics - Volatiles, Prep Batch ID: VS240226W1

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240226A9.BLKS26A

Run in Batch: 240226A9, Run Date: 02/26/2024 14:18, Prep Date: 02/26/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**97.1**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 240226A9.LCSS26A

Run in Batch: 240226A9, Run Date: 02/26/2024 12:14, Prep Date: 02/26/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**98.5**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240226A9.LCSDS26A, Parent Sample ID: 240226A9.LCSS26A

Run in Batch: 240226A9, Run Date: 02/26/2024 12:39, Prep Date: 02/26/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**82.7**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VS240226W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240226A9.BLKS26A

Run in Batch: 240226A9, Run Date: 02/26/2024 14:18, Prep Date: 02/26/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
1,4-Dioxane	*	0.48	0.02	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 240226A9.LCSS26A

Run in Batch: 240226A9, Run Date: 02/26/2024 12:14, Prep Date: 02/26/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		101.9	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240226A9.LCSDS26A, Parent Sample ID: 240226A9.LCSS26A

Run in Batch: 240226A9, Run Date: 02/26/2024 12:39, Prep Date: 02/26/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		129.4	70.0	130.0	23.7	30.0

Merit Laboratories Login Checklist

Lab Set ID: S58789
Client: ARCADIS_NOVI (ARCADIS U.S., Inc.)
Project: 30214036.47B / RACER Lansing GWS
Submitted: 02/15/2024 08:00 Login User: JAL

Attention: Kaitlyn Hunt
Address: Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 2.7
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[ ] Yes	[X] No	[ ] N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	[X] Yes	[ ] No	[ ] N/A	Do sample have correct chemical preservation	
11.	[ ] Yes	[X] No	[ ] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[ ] Yes	[X] No	[ ] N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[ ] Yes	[X] No	[ ] N/A	Samples require laboratory filtration	
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[X] No	[ ] N/A	Do water VOC or TOX bottles contain headspace	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Plant 3

Merit Laboratories, Inc.
2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Tiffany Linder, Kaitlyn Hunt
COMPANY: Arcadis
ADDRESS: 28550 Cabot Drive, STE 500
CITY: Novi STATE: MI ZIP CODE: 48377
PHONE NO.: 947-777-5215 FAX NO.: P.O. NO.:
E-MAIL ADDRESS: kaitlyn.hunt@arcadis.com QUOTE NO.:

INVOICE TO

CONTACT NAME: ☒ SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: E-MAIL ADDRESS: tiffany.linder@arcadis.com

PROJECT NO./NAME: 30214036.47B / RACER Lansing GWS
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Billy J. COBEAN

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☒ EDD ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES
Project Locations
☐ Detroit ☐ New York
☐ Other
Special Instructions

MERIT LAB NO. FOR LAB USE ONLY	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	1,4-Dioxane - 8260 SIMS
58789.01	2/13/24	1430	MW-12-21_021324	GW	3		3						X
.02	2/13/24	1605	PW-14-03R_021324	GW	3		3						X
.03	2/13/24	1105	AS-19-A06_021324	GW	3		3						X
.04	2/13/24	1240	MW-13-22_021324	GW	3		3						X
.05	2/13/24	1415	TW-15-11_021324	GW	3		3						X
.06	2/13/24	1555	MW-13-34_021324	GW	3		3						X
.07	2/13/24	—	DUP-02_021324	GW	3		3						X

RELINQUISHED BY: SIGNATURE/ORGANIZATION ☒ Sampler DATE 2.14.24 TIME 1715
RECEIVED BY: SIGNATURE/ORGANIZATION DATE 2/14/24 TIME 1715
RELINQUISHED BY: SIGNATURE/ORGANIZATION DATE TIME
RECEIVED BY: SIGNATURE/ORGANIZATION DATE TIME

RELINQUISHED BY: SIGNATURE/ORGANIZATION DATE TIME
RECEIVED BY: SIGNATURE/ORGANIZATION DATE TIME

SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS
SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS

NOTES: TEMP. ON ARRIVAL 2.7

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

Analytical Laboratory Report

Report ID: S58790.01(01)+QC01
Generated on 02/19/2024

Report to

Attention: Kaitlyn Hunt
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 C:947-777-5215 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Addtional Contacts: Marina Samp, Tiffany Linder, Caitlin Cisco

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S58790.01-S58790.07
Project: 30214036.102 / RACER Lansing GWS
Collected Date(s): 02/13/2024
Submitted Date/Time: 02/15/2024 08:00
Sampled by: Austin Westhuis
P.O. #: 30214036.102

Table of Contents

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Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Starred (*) analytes are not NY NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.
Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.
All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.
For a specific list of accredited analytes, please feel free to contact the laboratory or visit https://www.meritlabs.com/certifications.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
N/A	Not Applicable
SW5030C/8260C	SW 846 Method 8260C Revision 3 August 2006 / 5030C Revision 3 May 2003

Sample Summary (7 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S58790.01	MW-22-154_021324	Groundwater	02/13/24 13:45
S58790.02	MW-22-154_021324 MS	Groundwater	02/13/24 13:45
S58790.03	MW-22-154_021324 MSD	Groundwater	02/13/24 13:45
S58790.04	MW-20-132_021324	Groundwater	02/13/24 14:55
S58790.05	MW-20-131_021324	Groundwater	02/13/24 15:50
S58790.06	DUP-03_021324	Groundwater	02/13/24 00:01
S58790.07	Trip Blank	Groundwater	02/13/24 00:01

Lab Sample ID: S58790.01
Sample Tag: MW-22-154_021324
Collected Date/Time: 02/13/2024 13:45
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	2.7	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	02/19/24 11:57	ACK	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 02/17/24 20:15, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	1	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	

Lab Sample ID: S58790.01 (continued)
Sample Tag: MW-22-154_021324

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 02/17/24 20:15, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Lab Sample ID: S58790.02
Sample Tag: MW-22-154_021324 MS
Collected Date/Time: 02/13/2024 13:45
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	2.7	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	02/19/24 11:57	ACK	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 02/17/24 13:04, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	51	10		ug/L	1	60-29-7	1
Acetone	51	50		ug/L	1	67-64-1	1
Methyl iodide	50	1		ug/L	1	74-88-4	1
Carbon disulfide	48	5		ug/L	1	75-15-0	1
tert-Methyl butyl ether (MTBE)	51	5		ug/L	1	1634-04-4	1
Acrylonitrile	50	2		ug/L	1	107-13-1	1
2-Butanone (MEK)	46	25		ug/L	1	78-93-3	1
Dichlorodifluoromethane	45	5		ug/L	1	75-71-8	1
Chloromethane	50	5		ug/L	1	74-87-3	1
Vinyl chloride	47	1		ug/L	1	75-01-4	1
Bromomethane	48	5		ug/L	1	74-83-9	1
Chloroethane	47	5		ug/L	1	75-00-3	1
Trichlorofluoromethane	45	1		ug/L	1	75-69-4	1
1,1-Dichloroethene	46	1		ug/L	1	75-35-4	1
Methylene chloride	50	5		ug/L	1	75-09-2	1
trans-1,2-Dichloroethene	48	1		ug/L	1	156-60-5	1
1,1-Dichloroethane	49	1		ug/L	1	75-34-3	1
cis-1,2-Dichloroethene	51	1		ug/L	1	156-59-2	1
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	1
Chloroform	49	1		ug/L	1	67-66-3	1
Bromochloromethane	50	1		ug/L	1	74-97-5	1
1,1,1-Trichloroethane	48	1		ug/L	1	71-55-6	1
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	1
2-Hexanone	Not detected	50		ug/L	1	591-78-6	1
Carbon tetrachloride	48	1		ug/L	1	56-23-5	1
Benzene	50	1		ug/L	1	71-43-2	1
1,2-Dichloroethane	50	1		ug/L	1	107-06-2	1
Trichloroethene	49	1		ug/L	1	79-01-6	1
1,2-Dichloropropane	50	1		ug/L	1	78-87-5	1
Bromodichloromethane	52	1		ug/L	1	75-27-4	1
Dibromomethane	51	5		ug/L	1	74-95-3	1
cis-1,3-Dichloropropene	47	1		ug/L	1	10061-01-5	1
Toluene	49	1		ug/L	1	108-88-3	1
trans-1,3-Dichloropropene	49	1		ug/L	1	10061-02-6	1
1,1,2-Trichloroethane	51	1		ug/L	1	79-00-5	1
Tetrachloroethene	48	1		ug/L	1	127-18-4	1

1-Spiked at 50 ug/L

Lab Sample ID: S58790.02 (continued)
Sample Tag: MW-22-154_021324 MS

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 02/17/24 13:04, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
trans-1,4-Dichloro-2-butene	47	1		ug/L	1	110-57-6	1
Dibromochloromethane	52	5		ug/L	1	124-48-1	1
1,2-Dibromoethane	51	1		ug/L	1	106-93-4	1
Chlorobenzene	50	1		ug/L	1	108-90-7	1
1,1,1,2-Tetrachloroethane	51	1		ug/L	1	630-20-6	1
Ethylbenzene	50	1		ug/L	1	100-41-4	1
p,m-Xylene*	99	2		ug/L	1		1
o-Xylene	50	1		ug/L	1	95-47-6	1
Styrene	51	1		ug/L	1	100-42-5	1
Isopropylbenzene	50	5		ug/L	1	98-82-8	1
Bromoform	51	1		ug/L	1	75-25-2	1
1,1,2,2-Tetrachloroethane	51	1		ug/L	1	79-34-5	1
1,2,3-Trichloropropane	50	1		ug/L	1	96-18-4	1
n-Propylbenzene	48	1		ug/L	1	103-65-1	1
Bromobenzene	51	1		ug/L	1	108-86-1	1
1,3,5-Trimethylbenzene	48	1		ug/L	1	108-67-8	1
tert-Butylbenzene	48	1		ug/L	1	98-06-6	1
1,2,4-Trimethylbenzene	49	1		ug/L	1	95-63-6	1
sec-Butylbenzene	48	1		ug/L	1	135-98-8	1
p-Isopropyltoluene	50	5		ug/L	1	99-87-6	1
1,3-Dichlorobenzene	51	1		ug/L	1	541-73-1	1
1,4-Dichlorobenzene	51	1		ug/L	1	106-46-7	1
1,2-Dichlorobenzene	52	1		ug/L	1	95-50-1	1
1,2,3-Trimethylbenzene	50	1		ug/L	1	526-73-8	1
n-Butylbenzene	47	1		ug/L	1	104-51-8	1
Hexachloroethane	49	5		ug/L	1	67-72-1	1
1,2-Dibromo-3-chloropropane	52	5		ug/L	1	96-12-8	1
1,2,4-Trichlorobenzene	50	5		ug/L	1	120-82-1	1
1,2,3-Trichlorobenzene	51	5		ug/L	1	87-61-6	1
Naphthalene	53	5		ug/L	1	91-20-3	1
2-Methylnaphthalene	54	5		ug/L	1	91-57-6	1

1-Spiked at 50 ug/L

Lab Sample ID: S58790.03
Sample Tag: MW-22-154_021324 MSD
Collected Date/Time: 02/13/2024 13:45
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	2.7	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	02/19/24 11:57	ACK	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 02/17/24 13:28, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	50	10		ug/L	1	60-29-7	1
Acetone	52	50		ug/L	1	67-64-1	1
Methyl iodide	49	1		ug/L	1	74-88-4	1
Carbon disulfide	46	5		ug/L	1	75-15-0	1
tert-Methyl butyl ether (MTBE)	51	5		ug/L	1	1634-04-4	1
Acrylonitrile	55	2		ug/L	1	107-13-1	1
2-Butanone (MEK)	51	25		ug/L	1	78-93-3	1
Dichlorodifluoromethane	44	5		ug/L	1	75-71-8	1
Chloromethane	47	5		ug/L	1	74-87-3	1
Vinyl chloride	47	1		ug/L	1	75-01-4	1
Bromomethane	46	5		ug/L	1	74-83-9	1
Chloroethane	46	5		ug/L	1	75-00-3	1
Trichlorofluoromethane	44	1		ug/L	1	75-69-4	1
1,1-Dichloroethene	46	1		ug/L	1	75-35-4	1
Methylene chloride	49	5		ug/L	1	75-09-2	1
trans-1,2-Dichloroethene	48	1		ug/L	1	156-60-5	1
1,1-Dichloroethane	49	1		ug/L	1	75-34-3	1
cis-1,2-Dichloroethene	50	1		ug/L	1	156-59-2	1
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	1
Chloroform	48	1		ug/L	1	67-66-3	1
Bromochloromethane	50	1		ug/L	1	74-97-5	1
1,1,1-Trichloroethane	47	1		ug/L	1	71-55-6	1
4-Methyl-2-pentanone (MIBK)	52	50		ug/L	1	108-10-1	1
2-Hexanone	51	50		ug/L	1	591-78-6	1
Carbon tetrachloride	47	1		ug/L	1	56-23-5	1
Benzene	49	1		ug/L	1	71-43-2	1
1,2-Dichloroethane	49	1		ug/L	1	107-06-2	1
Trichloroethene	48	1		ug/L	1	79-01-6	1
1,2-Dichloropropane	49	1		ug/L	1	78-87-5	1
Bromodichloromethane	50	1		ug/L	1	75-27-4	1
Dibromomethane	52	5		ug/L	1	74-95-3	1
cis-1,3-Dichloropropene	47	1		ug/L	1	10061-01-5	1
Toluene	48	1		ug/L	1	108-88-3	1
trans-1,3-Dichloropropene	49	1		ug/L	1	10061-02-6	1
1,1,2-Trichloroethane	50	1		ug/L	1	79-00-5	1
Tetrachloroethene	47	1		ug/L	1	127-18-4	1

1-Spiked at 50 ug/L

Lab Sample ID: S58790.03 (continued)
Sample Tag: MW-22-154_021324 MSD

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 02/17/24 13:28, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
trans-1,4-Dichloro-2-butene	50	1		ug/L	1	110-57-6	1
Dibromochloromethane	52	5		ug/L	1	124-48-1	1
1,2-Dibromoethane	52	1		ug/L	1	106-93-4	1
Chlorobenzene	50	1		ug/L	1	108-90-7	1
1,1,1,2-Tetrachloroethane	50	1		ug/L	1	630-20-6	1
Ethylbenzene	50	1		ug/L	1	100-41-4	1
p,m-Xylene*	99	2		ug/L	1		1
o-Xylene	50	1		ug/L	1	95-47-6	1
Styrene	51	1		ug/L	1	100-42-5	1
Isopropylbenzene	49	5		ug/L	1	98-82-8	1
Bromoform	53	1		ug/L	1	75-25-2	1
1,1,2,2-Tetrachloroethane	53	1		ug/L	1	79-34-5	1
1,2,3-Trichloropropane	52	1		ug/L	1	96-18-4	1
n-Propylbenzene	48	1		ug/L	1	103-65-1	1
Bromobenzene	50	1		ug/L	1	108-86-1	1
1,3,5-Trimethylbenzene	49	1		ug/L	1	108-67-8	1
tert-Butylbenzene	48	1		ug/L	1	98-06-6	1
1,2,4-Trimethylbenzene	50	1		ug/L	1	95-63-6	1
sec-Butylbenzene	48	1		ug/L	1	135-98-8	1
p-Isopropyltoluene	50	5		ug/L	1	99-87-6	1
1,3-Dichlorobenzene	51	1		ug/L	1	541-73-1	1
1,4-Dichlorobenzene	50	1		ug/L	1	106-46-7	1
1,2-Dichlorobenzene	51	1		ug/L	1	95-50-1	1
1,2,3-Trimethylbenzene	50	1		ug/L	1	526-73-8	1
n-Butylbenzene	46	1		ug/L	1	104-51-8	1
Hexachloroethane	49	5		ug/L	1	67-72-1	1
1,2-Dibromo-3-chloropropane	56	5		ug/L	1	96-12-8	1
1,2,4-Trichlorobenzene	51	5		ug/L	1	120-82-1	1
1,2,3-Trichlorobenzene	53	5		ug/L	1	87-61-6	1
Naphthalene	56	5		ug/L	1	91-20-3	1
2-Methylnaphthalene	60	5		ug/L	1	91-57-6	1

1-Spiked at 50 ug/L

Lab Sample ID: S58790.04
Sample Tag: MW-20-132_021324
Collected Date/Time: 02/13/2024 14:55
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	2.7	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	02/19/24 11:57	ACK	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 02/17/24 20:39, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	1	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	4	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	

Lab Sample ID: S58790.04 (continued)
Sample Tag: MW-20-132_021324

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 02/17/24 20:39, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Lab Sample ID: S58790.05
Sample Tag: MW-20-131_021324
Collected Date/Time: 02/13/2024 15:50
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	2.7	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	02/19/24 11:57	ACK	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 02/17/24 21:03, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	2	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	1	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	

Lab Sample ID: S58790.05 (continued)
Sample Tag: MW-20-131_021324

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 02/17/24 21:03, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Lab Sample ID: S58790.06
Sample Tag: DUP-03_021324
Collected Date/Time: 02/13/2024 00:01
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	2.7	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	02/19/24 11:57	ACK	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 02/17/24 21:27, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	1	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	5	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	

Lab Sample ID: S58790.06 (continued)
Sample Tag: DUP-03_021324

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 02/17/24 21:27, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Lab Sample ID: S58790.07
Sample Tag: Trip Blank
Collected Date/Time: 02/13/2024 00:01
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	40ml Glass	HCL	Yes	2.7	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	02/19/24 11:57	ACK	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 02/17/24 15:27, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	

Lab Sample ID: S58790.07 (continued)
Sample Tag: Trip Blank

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 02/17/24 15:27, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Quality Control Report

Report ID: S58790.01(01)+QC01
Generated on 02/19/2024

Report to

Attention: Kaitlyn Hunt
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 C:947-777-5215 FAX:

Report Produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S58790.01-S58790.07
Project: 30214036.102 / RACER Lansing GWS
Submitted Date/Time: 02/15/2024 08:00
Sampled by: Austin Westhuis
P.O. #: 30214036.102

QC Report Sections

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Analysis Summary (Pages 21-27)
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Surrogates per Lab Sample (Pages 29-33)
Surrogates per QC Sample (Page 34)
Internal Standards per Lab Sample (Pages 35-39)
Internal Standards per QC Sample (Page 40)
Batch QC Results (Pages 41-48)

Report Flag Descriptions

*: QC result is outside of indicated control limits
W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.

Barbara Ball
Quality Assurance Manager

QC Report - Analysis Summary

Lab Sample ID: S58790.01
Sample Tag: MW-22-154_021324
Collected Date/Time: 02/13/2024 13:45
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	02/17/24 20:15	240216C9	VF240216W5	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S58790.02
Sample Tag: MW-22-154_021324 MS
Collected Date/Time: 02/13/2024 13:45
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	02/17/24 13:04	240216C9	VF240216W5	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S58790.03
Sample Tag: MW-22-154_021324 MSD
Collected Date/Time: 02/13/2024 13:45
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	02/17/24 13:28	240216C9	VF240216W5	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S58790.04
Sample Tag: MW-20-132_021324
Collected Date/Time: 02/13/2024 14:55
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	02/17/24 20:39	240216C9	VF240216W5	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S58790.05
Sample Tag: MW-20-131_021324
Collected Date/Time: 02/13/2024 15:50
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	02/17/24 21:03	240216C9	VF240216W5	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S58790.06
Sample Tag: DUP-03_021324
Collected Date/Time: 02/13/2024 00:01
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	02/17/24 21:27	240216C9	VF240216W5	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S58790.07

Sample Tag: Trip Blank

Collected Date/Time: 02/13/2024 00:01

Matrix: Groundwater

COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	02/17/24 15:27	240216C9	VF240216W5	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Prep Batch Summary

Organics - Volatiles, Prep Batch ID: VF240216W5

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S58790.01	Volatile Organics - DEQ List	SW5030C/8260C	02/17/24 20:15	240216C9
S58790.02	Volatile Organics - DEQ List	SW5030C/8260C	02/17/24 13:04	240216C9
S58790.03	Volatile Organics - DEQ List	SW5030C/8260C	02/17/24 13:28	240216C9
S58790.04	Volatile Organics - DEQ List	SW5030C/8260C	02/17/24 20:39	240216C9
S58790.05	Volatile Organics - DEQ List	SW5030C/8260C	02/17/24 21:03	240216C9
S58790.06	Volatile Organics - DEQ List	SW5030C/8260C	02/17/24 21:27	240216C9
S58790.07	Volatile Organics - DEQ List	SW5030C/8260C	02/17/24 15:27	240216C9

QC Report - Surrogates per Lab Sample

Lab Sample ID: S58790.01

Sample Tag: MW-22-154_021324

Collected Date/Time: 02/13/2024 13:45

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240216C9, Run Date: 02/17/2024 20:15, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**100.9**	80.0	124.0
1,2-Dichloroethane-D4		**103.2**	72.0	125.0
Toluene-D8		**99.6**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S58790.04

Sample Tag: MW-20-132_021324

Collected Date/Time: 02/13/2024 14:55

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240216C9, Run Date: 02/17/2024 20:39, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**99.5**	80.0	124.0
1,2-Dichloroethane-D4		**100.6**	72.0	125.0
Toluene-D8		**99.2**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S58790.05

Sample Tag: MW-20-131_021324

Collected Date/Time: 02/13/2024 15:50

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240216C9, Run Date: 02/17/2024 21:03, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**102.3**	80.0	124.0
1,2-Dichloroethane-D4		**108.5**	72.0	125.0
Toluene-D8		**100.1**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S58790.06

Sample Tag: DUP-03_021324

Collected Date/Time: 02/13/2024 00:01

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240216C9, Run Date: 02/17/2024 21:27, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**100.6**	80.0	124.0
1,2-Dichloroethane-D4		**103.9**	72.0	125.0
Toluene-D8		**100.9**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S58790.07

Sample Tag: Trip Blank

Collected Date/Time: 02/13/2024 00:01

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240216C9, Run Date: 02/17/2024 15:27, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**101.8**	80.0	124.0
1,2-Dichloroethane-D4		**97.6**	72.0	125.0
Toluene-D8		**99.6**	89.0	112.0

Organics - Volatiles, Prep Batch ID: VF240216W5

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 240216C9.BLKW16C

Run in Batch: 240216C9, Run Date: 02/17/2024 14:39, Prep Date: 02/16/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**100.7**	80.0	124.0
1,2-Dichloroethane-D4		**99.1**	72.0	125.0
Toluene-D8		**99.5**	89.0	112.0

Laboratory Control Sample (LCS)

Lab Sample ID: 240216C9.LCSW16C

Run in Batch: 240216C9, Run Date: 02/17/2024 12:16, Prep Date: 02/16/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**102.6**	80.0	124.0
1,2-Dichloroethane-D4		**97.1**	72.0	125.0
Toluene-D8		**99.4**	89.0	112.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240216C9.LCSDW16C, Parent Sample ID: 240216C9.LCSW16C

Run in Batch: 240216C9, Run Date: 02/17/2024 12:40, Prep Date: 02/16/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**102.0**	80.0	124.0
1,2-Dichloroethane-D4		**99.1**	72.0	125.0
Toluene-D8		**99.3**	89.0	112.0

Matrix Spike (MS)

Lab Sample ID: 240216C9.5879002M, Parent Sample ID: S58790.01

Run in Batch: 240216C9, Run Date: 02/17/2024 13:04, Prep Date: 02/16/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**101.3**	80.0	124.0
1,2-Dichloroethane-D4		**97.1**	72.0	125.0
Toluene-D8		**100.6**	89.0	112.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 240216C9.5879003N, Parent Sample ID: 240216C9.5879002M

Run in Batch: 240216C9, Run Date: 02/17/2024 13:28, Prep Date: 02/16/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**102.4**	80.0	124.0
1,2-Dichloroethane-D4		**100.6**	72.0	125.0
Toluene-D8		**99.7**	89.0	112.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S58790.01

Sample Tag: MW-22-154_021324

Collected Date/Time: 02/13/2024 13:45

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240216C9, Run Date: 02/17/2024 20:15, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**98.7**	50.0	200.0
1,4-Difluorobenzene		**99.1**	50.0	200.0
Chlorobenzene-D5		**100.6**	50.0	200.0
1,4-Dichlorobenzene-D4		**102.1**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S58790.04

Sample Tag: MW-20-132_021324

Collected Date/Time: 02/13/2024 14:55

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240216C9, Run Date: 02/17/2024 20:39, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**95.5**	50.0	200.0
1,4-Difluorobenzene		**95.9**	50.0	200.0
Chlorobenzene-D5		**98.7**	50.0	200.0
1,4-Dichlorobenzene-D4		**99.3**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S58790.05

Sample Tag: MW-20-131_021324

Collected Date/Time: 02/13/2024 15:50

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240216C9, Run Date: 02/17/2024 21:03, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**91.7**	50.0	200.0
1,4-Difluorobenzene		**93.0**	50.0	200.0
Chlorobenzene-D5		**96.5**	50.0	200.0
1,4-Dichlorobenzene-D4		**100.5**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S58790.06

Sample Tag: DUP-03_021324

Collected Date/Time: 02/13/2024 00:01

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240216C9, Run Date: 02/17/2024 21:27, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**91.7**	50.0	200.0
1,4-Difluorobenzene		**92.6**	50.0	200.0
Chlorobenzene-D5		**95.5**	50.0	200.0
1,4-Dichlorobenzene-D4		**97.0**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S58790.07

Sample Tag: Trip Blank

Collected Date/Time: 02/13/2024 00:01

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240216C9, Run Date: 02/17/2024 15:27, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**99.0**	50.0	200.0
1,4-Difluorobenzene		**98.7**	50.0	200.0
Chlorobenzene-D5		**99.4**	50.0	200.0
1,4-Dichlorobenzene-D4		**101.2**	50.0	200.0

QC Report - Internal Standards per QC Sample

Organics - Volatiles, Prep Batch ID: VF240216W5

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 240216C9.BLKW16C

Run in Batch: 240216C9, Run Date: 02/17/2024 14:39, Prep Date: 02/16/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**98.7**	50.0	200.0
1,4-Difluorobenzene		**98.6**	50.0	200.0
Chlorobenzene-D5		**99.1**	50.0	200.0
1,4-Dichlorobenzene-D4		**101.3**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 240216C9.LCSW16C

Run in Batch: 240216C9, Run Date: 02/17/2024 12:16, Prep Date: 02/16/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**99.6**	50.0	200.0
1,4-Difluorobenzene		**99.3**	50.0	200.0
Chlorobenzene-D5		**98.3**	50.0	200.0
1,4-Dichlorobenzene-D4		**102.3**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240216C9.LCSDW16C, Parent Sample ID: 240216C9.LCSW16C

Run in Batch: 240216C9, Run Date: 02/17/2024 12:40, Prep Date: 02/16/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**98.6**	50.0	200.0
1,4-Difluorobenzene		**101.0**	50.0	200.0
Chlorobenzene-D5		**101.6**	50.0	200.0
1,4-Dichlorobenzene-D4		**104.1**	50.0	200.0

Matrix Spike (MS)

Lab Sample ID: 240216C9.5879002M, Parent Sample ID: S58790.01

Run in Batch: 240216C9, Run Date: 02/17/2024 13:04, Prep Date: 02/16/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**102.0**	50.0	200.0
1,4-Difluorobenzene		**101.7**	50.0	200.0
Chlorobenzene-D5		**103.6**	50.0	200.0
1,4-Dichlorobenzene-D4		**103.6**	50.0	200.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 240216C9.5879003N, Parent Sample ID: 240216C9.5879002M

Run in Batch: 240216C9, Run Date: 02/17/2024 13:28, Prep Date: 02/16/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**99.5**	50.0	200.0
1,4-Difluorobenzene		**99.6**	50.0	200.0
Chlorobenzene-D5		**100.4**	50.0	200.0
1,4-Dichlorobenzene-D4		**101.5**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VF240216W5

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 240216C9.BLKW16C

Run in Batch: 240216C9, Run Date: 02/17/2024 14:39, Prep Date: 02/16/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Diethyl ether		ND	1.00	ug/l
Acetone		ND	10.00	ug/l
Methyl iodide		ND	1.00	ug/l
Carbon disulfide		ND	1.00	ug/l
tert-Methyl butyl ether (MTBE)		ND	1.00	ug/l
Acrylonitrile		ND	1.00	ug/l
2-Butanone (MEK)		ND	10.00	ug/l
Dichlorodifluoromethane		ND	1.00	ug/l
Chloromethane		ND	1.00	ug/l
Vinyl chloride		ND	1.00	ug/l
Bromomethane		ND	1.00	ug/l
Chloroethane		ND	1.00	ug/l
Trichlorofluoromethane		ND	1.00	ug/l
1,1-Dichloroethene		ND	1.00	ug/l
Methylene chloride		ND	1.00	ug/l
trans-1,2-Dichloroethene		ND	1.00	ug/l
1,1-Dichloroethane		ND	1.00	ug/l
cis-1,2-Dichloroethene		ND	1.00	ug/l
Tetrahydrofuran		ND	10.00	ug/l
Chloroform		ND	1.00	ug/l
Bromochloromethane		ND	1.00	ug/l
1,1,1-Trichloroethane		ND	1.00	ug/l
4-Methyl-2-pentanone (MIBK)		ND	10.00	ug/l
2-Hexanone		ND	10.00	ug/l
Carbon tetrachloride		ND	1.00	ug/l
Benzene		ND	1.00	ug/l
1,2-Dichloroethane		ND	1.00	ug/l
Trichloroethene		ND	1.00	ug/l
1,2-Dichloropropane		ND	1.00	ug/l
Bromodichloromethane		ND	1.00	ug/l
Dibromomethane		ND	1.00	ug/l
cis-1,3-Dichloropropene		ND	1.00	ug/l
Toluene		ND	1.00	ug/l
trans-1,3-Dichloropropene		ND	1.00	ug/l
1,1,2-Trichloroethane		ND	1.00	ug/l
Tetrachloroethene		ND	1.00	ug/l
trans-1,4-Dichloro-2-butene		ND	1.00	ug/l
Dibromochloromethane		ND	1.00	ug/l
1,2-Dibromoethane		ND	1.00	ug/l
Chlorobenzene		ND	1.00	ug/l
1,1,1,2-Tetrachloroethane		ND	1.00	ug/l
Ethylbenzene		ND	1.00	ug/l
p,m-Xylene		ND	1.00	ug/l
o-Xylene		ND	1.00	ug/l
Styrene		ND	1.00	ug/l
Isopropylbenzene		ND	1.00	ug/l

Organics - Volatiles, Prep Batch ID: VF240216W5 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK) (continued)

Lab Sample ID: 240216C9.BLKW16C

Run in Batch: 240216C9, Run Date: 02/17/2024 14:39, Prep Date: 02/16/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Bromoform		ND	1.00	ug/l
1,1,2,2-Tetrachloroethane		ND	1.00	ug/l
1,2,3-Trichloropropane		ND	1.00	ug/l
n-Propylbenzene		ND	1.00	ug/l
Bromobenzene		ND	1.00	ug/l
1,3,5-Trimethylbenzene		ND	1.00	ug/l
tert-Butylbenzene		ND	1.00	ug/l
1,2,4-Trimethylbenzene		ND	1.00	ug/l
sec-Butylbenzene		ND	1.00	ug/l
p-Isopropyltoluene		ND	1.00	ug/l
1,3-Dichlorobenzene		ND	1.00	ug/l
1,4-Dichlorobenzene		ND	1.00	ug/l
1,2-Dichlorobenzene		ND	1.00	ug/l
1,2,3-Trimethylbenzene		ND	1.00	ug/l
n-Butylbenzene		ND	1.00	ug/l
Hexachloroethane		ND	1.00	ug/l
1,2-Dibromo-3-chloropropane		ND	1.00	ug/l
1,2,4-Trichlorobenzene		ND	1.00	ug/l
1,2,3-Trichlorobenzene		ND	1.00	ug/l
Naphthalene		ND	1.00	ug/l
2-Methylnaphthalene		ND	1.00	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 240216C9.LCSW16C

Run in Batch: 240216C9, Run Date: 02/17/2024 12:16, Prep Date: 02/16/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Diethyl ether		103.4	67.4	121.2
Acetone		113.6	29.9	161.5
Methyl iodide		103.6	68.8	116.4
Carbon disulfide		95.8	63.8	137.4
tert-Methyl butyl ether (MTBE)		104.9	73.2	122.4
Acrylonitrile		108.3	69.9	128.9
2-Butanone (MEK)		102.8	44.0	134.4
Dichlorodifluoromethane		87.5	10.0	222.8
Chloromethane		98.7	23.8	166.5
Vinyl chloride		96.1	43.5	149.1
Bromomethane		98.4	56.8	151.3
Chloroethane		96.0	53.4	149.4
Trichlorofluoromethane		92.0	59.7	151.8
1,1-Dichloroethene		95.6	69.6	139.4
Methylene chloride		104.2	73.3	121.1
trans-1,2-Dichloroethene		101.0	73.6	129.3
1,1-Dichloroethane		104.0	71.5	126.2
cis-1,2-Dichloroethene		104.9	76.6	122.1
Tetrahydrofuran		97.0	59.0	117.9
Chloroform		104.1	78.4	124.0

Organics - Volatiles, Prep Batch ID: VF240216W5 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 240216C9.LCSW16C

Run in Batch: 240216C9, Run Date: 02/17/2024 12:16, Prep Date: 02/16/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Bromochloromethane		105.8	78.2	120.8
1,1,1-Trichloroethane		101.1	79.4	130.9
4-Methyl-2-pentanone (MIBK)		106.1	71.6	125.2
2-Hexanone		105.7	55.4	136.9
Carbon tetrachloride		98.0	72.6	133.0
Benzene		104.7	79.9	124.9
1,2-Dichloroethane		103.8	76.0	126.3
Trichloroethene		103.1	79.7	124.2
1,2-Dichloropropane		105.4	78.6	126.4
Bromodichloromethane		106.3	80.4	128.2
Dibromomethane		109.1	76.9	122.1
cis-1,3-Dichloropropene		100.7	79.8	129.9
Toluene		104.7	79.8	124.5
trans-1,3-Dichloropropene		101.6	74.0	131.3
1,1,2-Trichloroethane		103.6	78.7	123.1
Tetrachloroethene		100.3	74.5	124.5
trans-1,4-Dichloro-2-butene		104.6	68.6	135.4
Dibromochloromethane		110.8	74.6	127.2
1,2-Dibromoethane		110.6	70.3	133.7
Chlorobenzene		110.1	79.2	122.7
1,1,1,2-Tetrachloroethane		108.8	80.3	128.2
Ethylbenzene		107.5	79.5	129.1
p,m-Xylene		107.5	79.4	132.2
o-Xylene		109.1	80.2	131.0
Styrene		111.3	69.5	126.7
Isopropylbenzene		109.7	74.4	121.5
Bromoform		110.6	69.4	128.0
1,1,2,2-Tetrachloroethane		107.8	79.8	126.3
1,2,3-Trichloropropane		111.4	78.3	138.8
n-Propylbenzene		106.2	82.0	130.7
Bromobenzene		108.6	78.7	124.6
1,3,5-Trimethylbenzene		108.1	81.3	128.9
tert-Butylbenzene		109.1	80.7	128.9
1,2,4-Trimethylbenzene		109.9	81.4	130.8
sec-Butylbenzene		105.3	77.4	129.8
p-Isopropyltoluene		107.3	79.8	137.5
1,3-Dichlorobenzene		108.0	77.0	131.3
1,4-Dichlorobenzene		107.6	20.7	137.7
1,2-Dichlorobenzene		109.1	10.0	166.2
1,2,3-Trimethylbenzene		106.3	76.3	124.2
n-Butylbenzene		102.1	80.0	133.3
Hexachloroethane		109.7	23.8	138.1
1,2-Dibromo-3-chloropropane		111.5	21.2	189.4
1,2,4-Trichlorobenzene		110.2	27.4	143.4
1,2,3-Trichlorobenzene		114.7	75.4	131.4
Naphthalene		117.0	32.9	135.8

Organics - Volatiles, Prep Batch ID: VF240216W5 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 240216C9.LCSW16C

Run in Batch: 240216C9, Run Date: 02/17/2024 12:16, Prep Date: 02/16/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
2-Methylnaphthalene		126.0	25.5	165.5

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240216C9.LCSDW16C, Parent Sample ID: 240216C9.LCSW16C

Run in Batch: 240216C9, Run Date: 02/17/2024 12:40, Prep Date: 02/16/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Diethyl ether		100.2	67.4	121.2	3.1	30.0
Acetone		106.0	29.9	161.5	6.9	30.0
Methyl iodide		98.2	68.8	116.4	5.3	30.0
Carbon disulfide		89.4	63.8	137.4	7.0	30.0
tert-Methyl butyl ether (MTBE)		101.9	73.2	122.4	2.8	30.0
Acrylonitrile		101.6	69.9	128.9	6.4	30.0
2-Butanone (MEK)		95.6	44.0	134.4	7.2	30.0
Dichlorodifluoromethane		79.8	10.0	222.8	9.2	30.0
Chloromethane		91.1	23.8	166.5	8.0	30.0
Vinyl chloride		89.3	43.5	149.1	7.4	30.0
Bromomethane		93.5	56.8	151.3	5.1	30.0
Chloroethane		91.1	53.4	149.4	5.2	30.0
Trichlorofluoromethane		85.7	59.7	151.8	7.1	30.0
1,1-Dichloroethene		89.3	69.6	139.4	6.8	30.0
Methylene chloride		98.2	73.3	121.1	5.9	30.0
trans-1,2-Dichloroethene		94.5	73.6	129.3	6.6	30.0
1,1-Dichloroethane		97.4	71.5	126.2	6.6	30.0
cis-1,2-Dichloroethene		99.6	76.6	122.1	5.2	30.0
Tetrahydrofuran		92.4	59.0	117.9	4.9	30.0
Chloroform		97.4	78.4	124.0	6.6	30.0
Bromochloromethane		101.1	78.2	120.8	4.5	30.0
1,1,1-Trichloroethane		94.0	79.4	130.9	7.3	30.0
4-Methyl-2-pentanone (MIBK)		97.1	71.6	125.2	8.8	30.0
2-Hexanone		94.2	55.4	136.9	11.5	30.0
Carbon tetrachloride		89.8	72.6	133.0	8.7	30.0
Benzene		96.2	79.9	124.9	8.4	30.0
1,2-Dichloroethane		97.6	76.0	126.3	6.1	30.0
Trichloroethene		96.1	79.7	124.2	7.0	30.0
1,2-Dichloropropane		98.1	78.6	126.4	7.2	30.0
Bromodichloromethane		100.2	80.4	128.2	5.9	30.0
Dibromomethane		102.0	76.9	122.1	6.7	30.0
cis-1,3-Dichloropropene		95.6	79.8	129.9	5.3	30.0
Toluene		95.9	79.8	124.5	8.8	30.0
trans-1,3-Dichloropropene		96.6	74.0	131.3	5.1	30.0
1,1,2-Trichloroethane		98.3	78.7	123.1	5.2	30.0
Tetrachloroethene		91.1	74.5	124.5	9.6	30.0
trans-1,4-Dichloro-2-butene		93.8	68.6	135.4	10.8	30.0
Dibromochloromethane		102.8	74.6	127.2	7.5	30.0
1,2-Dibromoethane		102.0	70.3	133.7	8.1	30.0
Chlorobenzene		99.9	79.2	122.7	9.7	30.0

Organics - Volatiles, Prep Batch ID: VF240216W5 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: 240216C9.LCSDW16C, Parent Sample ID: 240216C9.LCSW16C

Run in Batch: 240216C9, Run Date: 02/17/2024 12:40, Prep Date: 02/16/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,1,1,2-Tetrachloroethane		101.3	80.3	128.2	7.1	30.0
Ethylbenzene		97.3	79.5	129.1	10.0	30.0
p,m-Xylene		98.1	79.4	132.2	9.2	30.0
o-Xylene		99.4	80.2	131.0	9.3	30.0
Styrene		103.4	69.5	126.7	7.4	30.0
Isopropylbenzene		97.2	74.4	121.5	12.0	30.0
Bromoform		101.3	69.4	128.0	8.8	30.0
1,1,2,2-Tetrachloroethane		96.7	79.8	126.3	10.8	30.0
1,2,3-Trichloropropane		100.6	78.3	138.8	10.1	30.0
n-Propylbenzene		96.2	82.0	130.7	9.8	30.0
Bromobenzene		100.5	78.7	124.6	7.7	30.0
1,3,5-Trimethylbenzene		98.9	81.3	128.9	8.8	30.0
tert-Butylbenzene		96.9	80.7	128.9	11.8	30.0
1,2,4-Trimethylbenzene		100.4	81.4	130.8	9.1	30.0
sec-Butylbenzene		96.3	77.4	129.8	9.0	30.0
p-Isopropyltoluene		99.0	79.8	137.5	8.1	30.0
1,3-Dichlorobenzene		100.7	77.0	131.3	7.0	30.0
1,4-Dichlorobenzene		100.4	20.7	137.7	6.9	30.0
1,2-Dichlorobenzene		101.5	10.0	166.2	7.2	30.0
1,2,3-Trimethylbenzene		100.3	76.3	124.2	5.8	30.0
n-Butylbenzene		93.9	80.0	133.3	8.3	30.0
Hexachloroethane		98.9	23.8	138.1	10.3	30.0
1,2-Dibromo-3-chloropropane		99.5	21.2	189.4	11.3	30.0
1,2,4-Trichlorobenzene		101.5	27.4	143.4	8.2	30.0
1,2,3-Trichlorobenzene		103.8	75.4	131.4	9.9	30.0
Naphthalene		104.1	32.9	135.8	11.7	30.0
2-Methylnaphthalene		112.8	25.5	165.5	11.1	30.0

Matrix Spike (MS)

Lab Sample ID: 240216C9.5879002M, Parent Sample ID: S58790.01

Run in Batch: 240216C9, Run Date: 02/17/2024 13:04, Prep Date: 02/16/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Diethyl ether		101.3	67.4	121.2
Acetone		100.2	29.9	161.5
Methyl iodide		100.5	68.8	116.4
Carbon disulfide		94.9	63.8	137.4
tert-Methyl butyl ether (MTBE)		101.7	73.2	122.4
Acrylonitrile		100.8	69.9	128.9
2-Butanone (MEK)		92.8	44.0	134.4
Dichlorodifluoromethane		91.0	10.0	222.8
Chloromethane		99.2	23.8	166.5
Vinyl chloride		94.8	43.5	149.1
Bromomethane		95.8	56.8	151.3
Chloroethane		94.2	53.4	149.4
Trichlorofluoromethane		90.3	59.7	151.8
1,1-Dichloroethene		91.9	69.6	139.4

Organics - Volatiles, Prep Batch ID: VF240216W5 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Matrix Spike (MS) (continued)

Lab Sample ID: 240216C9.5879002M, Parent Sample ID: S58790.01

Run in Batch: 240216C9, Run Date: 02/17/2024 13:04, Prep Date: 02/16/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Methylene chloride		99.1	73.3	121.1
trans-1,2-Dichloroethene		96.6	73.6	129.3
1,1-Dichloroethane		98.8	71.5	126.2
cis-1,2-Dichloroethene		100.2	76.6	122.1
Tetrahydrofuran		93.1	59.0	117.9
Chloroform		97.2	78.4	124.0
Bromochloromethane		100.6	78.2	120.8
1,1,1-Trichloroethane		96.6	79.4	130.9
4-Methyl-2-pentanone (MIBK)		96.5	71.6	125.2
2-Hexanone		95.6	55.4	136.9
Carbon tetrachloride		96.0	72.6	133.0
Benzene		99.8	79.9	124.9
1,2-Dichloroethane		100.1	76.0	126.3
Trichloroethene		98.8	79.7	124.2
1,2-Dichloropropane		99.6	78.6	126.4
Bromodichloromethane		103.1	80.4	128.2
Dibromomethane		102.8	76.9	122.1
cis-1,3-Dichloropropene		94.9	79.8	129.9
Toluene		98.9	79.8	124.5
trans-1,3-Dichloropropene		97.9	74.0	131.3
1,1,2-Trichloroethane		101.1	78.7	123.1
Tetrachloroethene		96.0	74.5	124.5
trans-1,4-Dichloro-2-butene		94.0	68.6	135.4
Dibromochloromethane		104.2	74.6	127.2
1,2-Dibromoethane		101.7	70.3	133.7
Chlorobenzene		100.5	79.2	122.7
1,1,1,2-Tetrachloroethane		102.3	80.3	128.2
Ethylbenzene		99.2	79.5	129.1
p,m-Xylene		98.6	79.4	132.2
o-Xylene		100.2	80.2	131.0
Styrene		102.1	69.5	126.7
Isopropylbenzene		99.1	74.4	121.5
Bromoform		101.4	69.4	128.0
1,1,2,2-Tetrachloroethane		101.1	79.8	126.3
1,2,3-Trichloropropane		100.3	78.3	138.8
n-Propylbenzene		96.8	82.0	130.7
Bromobenzene		102.5	78.7	124.6
1,3,5-Trimethylbenzene		96.0	81.3	128.9
tert-Butylbenzene		96.7	80.7	128.9
1,2,4-Trimethylbenzene		98.4	81.4	130.8
sec-Butylbenzene		96.8	77.4	129.8
p-Isopropyltoluene		99.2	79.8	137.5
1,3-Dichlorobenzene		102.0	77.0	131.3
1,4-Dichlorobenzene		101.3	20.7	137.7
1,2-Dichlorobenzene		104.1	10.0	166.2
1,2,3-Trimethylbenzene		100.5	76.3	124.2

Organics - Volatiles, Prep Batch ID: VF240216W5 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Matrix Spike (MS) (continued)

Lab Sample ID: 240216C9.5879002M, Parent Sample ID: S58790.01

Run in Batch: 240216C9, Run Date: 02/17/2024 13:04, Prep Date: 02/16/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
n-Butylbenzene		93.2	80.0	133.3
Hexachloroethane		99.0	23.8	138.1
1,2-Dibromo-3-chloropropane		104.6	21.2	189.4
1,2,4-Trichlorobenzene		99.5	27.4	143.4
1,2,3-Trichlorobenzene		102.6	75.4	131.4
Naphthalene		106.6	32.9	135.8
2-Methylnaphthalene		108.8	25.5	165.5

Matrix Spike Duplicate (MSD)

Lab Sample ID: 240216C9.5879003N, Parent Sample ID: 240216C9.5879002M

Run in Batch: 240216C9, Run Date: 02/17/2024 13:28, Prep Date: 02/16/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Diethyl ether		99.7	67.4	121.2	1.6	30.0
Acetone		103.2	29.9	161.5	2.9	30.0
Methyl iodide		97.2	68.8	116.4	3.3	30.0
Carbon disulfide		92.8	63.8	137.4	2.2	30.0
tert-Methyl butyl ether (MTBE)		102.0	73.2	122.4	0.3	30.0
Acrylonitrile		109.9	69.9	128.9	8.6	30.0
2-Butanone (MEK)		101.3	44.0	134.4	8.8	30.0
Dichlorodifluoromethane		87.7	10.0	222.8	3.6	30.0
Chloromethane		94.8	23.8	166.5	4.5	30.0
Vinyl chloride		93.4	43.5	149.1	1.4	30.0
Bromomethane		92.5	56.8	151.3	3.5	30.0
Chloroethane		92.3	53.4	149.4	2.0	30.0
Trichlorofluoromethane		88.3	59.7	151.8	2.2	30.0
1,1-Dichloroethene		91.3	69.6	139.4	0.7	30.0
Methylene chloride		97.0	73.3	121.1	2.2	30.0
trans-1,2-Dichloroethene		94.8	73.6	129.3	1.9	30.0
1,1-Dichloroethane		97.4	71.5	126.2	1.4	30.0
cis-1,2-Dichloroethene		98.0	76.6	122.1	2.2	30.0
Tetrahydrofuran		101.3	59.0	117.9	8.4	30.0
Chloroform		95.9	78.4	124.0	1.3	30.0
Bromochloromethane		99.0	78.2	120.8	1.6	30.0
1,1,1-Trichloroethane		93.8	79.4	130.9	3.0	30.0
4-Methyl-2-pentanone (MIBK)		104.1	71.6	125.2	7.6	30.0
2-Hexanone		102.7	55.4	136.9	7.2	30.0
Carbon tetrachloride		93.1	72.6	133.0	3.1	30.0
Benzene		97.5	79.9	124.9	2.4	30.0
1,2-Dichloroethane		97.1	76.0	126.3	3.0	30.0
Trichloroethene		95.8	79.7	124.2	3.1	30.0
1,2-Dichloropropane		97.3	78.6	126.4	2.4	30.0
Bromodichloromethane		99.1	80.4	128.2	4.0	30.0
Dibromomethane		103.2	76.9	122.1	0.4	30.0
cis-1,3-Dichloropropene		94.6	79.8	129.9	0.2	30.0
Toluene		96.6	79.8	124.5	2.4	30.0
trans-1,3-Dichloropropene		97.2	74.0	131.3	0.8	30.0

Organics - Volatiles, Prep Batch ID: VF240216W5 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Matrix Spike Duplicate (MSD) (continued)

Lab Sample ID: 240216C9.5879003N, Parent Sample ID: 240216C9.5879002M

Run in Batch: 240216C9, Run Date: 02/17/2024 13:28, Prep Date: 02/16/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,1,2-Trichloroethane		99.9	78.7	123.1	1.2	30.0
Tetrachloroethene		94.8	74.5	124.5	1.2	30.0
trans-1,4-Dichloro-2-butene		100.1	68.6	135.4	6.3	30.0
Dibromochloromethane		104.2	74.6	127.2	0.0	30.0
1,2-Dibromoethane		104.2	70.3	133.7	2.4	30.0
Chlorobenzene		100.2	79.2	122.7	0.3	30.0
1,1,1,2-Tetrachloroethane		100.7	80.3	128.2	1.6	30.0
Ethylbenzene		99.0	79.5	129.1	0.1	30.0
p,m-Xylene		98.5	79.4	132.2	0.0	30.0
o-Xylene		99.5	80.2	131.0	0.6	30.0
Styrene		102.6	69.5	126.7	0.5	30.0
Isopropylbenzene		98.7	74.4	121.5	0.4	30.0
Bromoform		105.2	69.4	128.0	3.7	30.0
1,1,2,2-Tetrachloroethane		105.6	79.8	126.3	4.4	30.0
1,2,3-Trichloropropane		104.2	78.3	138.8	3.8	30.0
n-Propylbenzene		96.2	82.0	130.7	0.6	30.0
Bromobenzene		100.9	78.7	124.6	1.6	30.0
1,3,5-Trimethylbenzene		97.1	81.3	128.9	1.1	30.0
tert-Butylbenzene		96.9	80.7	128.9	0.2	30.0
1,2,4-Trimethylbenzene		99.1	81.4	130.8	0.6	30.0
sec-Butylbenzene		96.5	77.4	129.8	0.4	30.0
p-Isopropyltoluene		99.4	79.8	137.5	0.3	30.0
1,3-Dichlorobenzene		102.2	77.0	131.3	0.2	30.0
1,4-Dichlorobenzene		100.4	20.7	137.7	0.9	30.0
1,2-Dichlorobenzene		102.9	10.0	166.2	1.2	30.0
1,2,3-Trimethylbenzene		100.3	76.3	124.2	0.1	30.0
n-Butylbenzene		92.3	80.0	133.3	1.0	30.0
Hexachloroethane		97.7	23.8	138.1	1.3	30.0
1,2-Dibromo-3-chloropropane		112.8	21.2	189.4	7.5	30.0
1,2,4-Trichlorobenzene		101.3	27.4	143.4	1.8	30.0
1,2,3-Trichlorobenzene		105.6	75.4	131.4	2.9	30.0
Naphthalene		111.9	32.9	135.8	4.9	30.0
2-Methylnaphthalene		119.1	25.5	165.5	9.1	30.0

Merit Laboratories Login Checklist

Lab Set ID: S58790
Client: ARCADIS_NOVI (ARCADIS U.S., Inc.)
Project: 30214036.102 / RACER Lansing GWS
Submitted: 02/15/2024 08:00 Login User: JAL

Attention: Kaitlyn Hunt
Address: Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 2.7
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[ ] Yes	[X] No	[ ] N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	[X] Yes	[ ] No	[ ] N/A	Do sample have correct chemical preservation	
11.	[ ] Yes	[X] No	[ ] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[ ] Yes	[X] No	[ ] N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[ ] Yes	[X] No	[ ] N/A	Samples require laboratory filtration	
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[X] No	[ ] N/A	Do water VOC or TOX bottles contain headspace	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Plant 6

Merit Laboratories, Inc.

2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Tiffany Linder, Kaitlyn Hunt
COMPANY: Arcadis
ADDRESS: 28550 Cabot Drive, STE 500
CITY: Novi | STATE: MI | ZIP CODE: 48377
PHONE NO.: 947-777-5215 | FAX NO.: | P.O. NO.:
E-MAIL ADDRESS: kaitlyn.hunt@arcadis.com | QUOTE NO.:

INVOICE TO

CONTACT NAME: ☒ SAME
COMPANY:
ADDRESS:
CITY: | STATE: | ZIP CODE:
PHONE NO.: | E-MAIL ADDRESS: tiffany.linder@arcadis.com

PROJECT NO./NAME: 30214036.102 / RACER Lansing GWS
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Austin Westhuis / [signature]

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER _____

DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☒ EDD ☐ OTHER _____

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐ OHIO VAP ☐ Drinking Water ☐ DoD ☐ NPDES

Project Locations: ☐ Detroit ☐ New York ☐ Other _____

Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR 23 DATE	TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	VOC - 8260 SIMS	Special Instructions
58790.01	2/13/24	1345	MW-22-154_021324	GW	9		9						9	MS/MSD
.04	2/13/24	1455	MW-20-132_021324	GW	3		3						3	
.05	2/13/24	1550	MW-20-131_021324	GW	3		3						3	
.06	2/13/24	—	DUP-03_021324	GW	3		3						3	
.07	2/13/24	—	Trip Blank	GW	3		3						3	

RELINQUISHED BY: SIGNATURE/ORGANIZATION [signature] / Arcadis	☒ Sampler	DATE 2-14-24	TIME 16:45
RECEIVED BY: SIGNATURE/ORGANIZATION [signature]		DATE 2-14-24	TIME 1645
RELINQUISHED BY: SIGNATURE/ORGANIZATION [signature]		DATE 2-14-24	TIME 17:15
RECEIVED BY: SIGNATURE/ORGANIZATION [signature]		DATE 2-14-24	TIME 17:15

RELINQUISHED BY: SIGNATURE/ORGANIZATION | DATE | TIME
RECEIVED BY: SIGNATURE/ORGANIZATION | DATE | TIME

SEAL NO. | SEAL INTACT YES ☐ NO ☐ | INITIALS
SEAL NO. | SEAL INTACT YES ☐ NO ☐ | INITIALS

NOTES: | TEMP. ON ARRIVAL 2.7

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

Analytical Laboratory Report

Report ID: S58792.01(01)+QC01
Generated on 02/27/2024

Report to

Attention: Kaitlyn Hunt
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 C:947-777-5215 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Addtional Contacts: Marina Samp, Tiffany Linder, Caitlin Cisco

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S58792.01-S58792.13
Project: 30214036.47B / RACER Lansing GWS
Collected Date(s): 02/12/2024 - 02/13/2024
Submitted Date/Time: 02/15/2024 08:00
Sampled by: Billy Cobern
P.O. #: 30214036.47B

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QC Report (Pages 19-50)

Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Starred (*) analytes are not NY NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.
Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.
All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.
For a specific list of accredited analytes, please feel free to contact the laboratory or visit https://www.meritlabs.com/certifications.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
N/A	Not Applicable
SW8260B - SIM	SW 846 Method 8260B Revision 2 December 1996 SIMs

Sample Summary (13 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S58792.01	TW-14-02_021224	Groundwater	02/12/24 13:05
S58792.02	MW-19-123_021224	Groundwater	02/12/24 11:40
S58792.03	MW-20-129_021224	Groundwater	02/12/24 14:25
S58792.04	MW-20-129_021224 MS	Groundwater	02/12/24 14:25
S58792.05	MW-20-129_021224 MSD	Groundwater	02/12/24 14:25
S58792.06	MW-19-122_021224	Groundwater	02/12/24 15:35
S58792.07	PW-14-02_021324	Groundwater	02/13/24 10:55
S58792.08	TW-15-12_021324	Groundwater	02/13/24 12:40
S58792.09	DUP-01_021324	Groundwater	02/13/24 00:01
S58792.10	MW-20-126_021224	Groundwater	02/12/24 11:40
S58792.11	MW-20-127_021224	Groundwater	02/12/24 13:40
S58792.12	MW-19-121_021224	Groundwater	02/12/24 14:50
S58792.13	MW-16-78_021224	Groundwater	02/12/24 15:50

Lab Sample ID: S58792.01
Sample Tag: TW-14-02_021224
Collected Date/Time: 02/12/2024 13:05
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	2.7	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	02/26/24 11:07	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 02/23/24 16:11, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	4	1		ug/L	1	123-91-1	

Lab Sample ID: S58792.02
Sample Tag: MW-19-123_021224
Collected Date/Time: 02/12/2024 11:40
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	2.7	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	02/26/24 11:07	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 02/23/24 16:36, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	48	1		ug/L	1	123-91-1	

Lab Sample ID: S58792.03
Sample Tag: MW-20-129_021224
Collected Date/Time: 02/12/2024 14:25
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	2.7	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	02/26/24 11:07	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 02/23/24 15:47, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	64	1		ug/L	1	123-91-1	

Lab Sample ID: S58792.04
Sample Tag: MW-20-129_021224 MS
Collected Date/Time: 02/12/2024 14:25
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	2.7	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	02/26/24 11:07	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 02/23/24 12:52, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	118	1		ug/L	1	123-91-1	1

1-Spiked at 50ug/L

Lab Sample ID: S58792.05
Sample Tag: MW-20-129_021224 MSD
Collected Date/Time: 02/12/2024 14:25
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	2.7	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	02/26/24 11:07	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 02/23/24 13:16, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	118	1		ug/L	1	123-91-1	1

1-Spiked at 50ug/L

Lab Sample ID: S58792.06
Sample Tag: MW-19-122_021224
Collected Date/Time: 02/12/2024 15:35
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	2.7	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	02/26/24 11:07	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 02/23/24 17:01, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	6	1		ug/L	1	123-91-1	

Lab Sample ID: S58792.07
Sample Tag: PW-14-02_021324
Collected Date/Time: 02/13/2024 10:55
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	2.7	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	02/26/24 11:07	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 02/23/24 19:05, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	55	1		ug/L	1	123-91-1	

Lab Sample ID: S58792.08
Sample Tag: TW-15-12_021324
Collected Date/Time: 02/13/2024 12:40
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	2.7	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	02/26/24 11:07	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 02/23/24 19:30, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	Not detected	1		ug/L	1	123-91-1	

Lab Sample ID: S58792.09
Sample Tag: DUP-01_021324
Collected Date/Time: 02/13/2024 00:01
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	2.7	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	02/26/24 11:07	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 02/23/24 19:55, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	51	1		ug/L	1	123-91-1	

Lab Sample ID: S58792.10
Sample Tag: MW-20-126_021224
Collected Date/Time: 02/12/2024 11:40
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	2.7	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	02/26/24 11:07	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 02/23/24 17:25, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	58	1		ug/L	1	123-91-1	

Lab Sample ID: S58792.11
Sample Tag: MW-20-127_021224
Collected Date/Time: 02/12/2024 13:40
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	2.7	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	02/26/24 11:07	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 02/23/24 17:51, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	156	1		ug/L	1	123-91-1	

Lab Sample ID: S58792.12
Sample Tag: MW-19-121_021224
Collected Date/Time: 02/12/2024 14:50
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	2.7	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	02/26/24 11:07	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 02/26/24 15:56, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	Not detected	1		ug/L	1	123-91-1	

Lab Sample ID: S58792.13
Sample Tag: MW-16-78_021224
Collected Date/Time: 02/12/2024 15:50
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	2.7	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	02/26/24 11:07	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 02/26/24 16:22, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	Not detected	1		ug/L	1	123-91-1	

Quality Control Report

Report ID: S58792.01(01)+QC01
Generated on 02/27/2024

Report to

Attention: Kaitlyn Hunt
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 C:947-777-5215 FAX:

Report Produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S58792.01-S58792.13
Project: 30214036.47B / RACER Lansing GWS
Submitted Date/Time: 02/15/2024 08:00
Sampled by: Billy Cobern
P.O. #: 30214036.47B

QC Report Sections

Cover Page (Page 19)
Analysis Summary (Pages 20-32)
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Internal Standards per Lab Sample (Pages 36-46)
Internal Standards per QC Sample (Pages 47-48)
Batch QC Results (Pages 49-50)

Report Flag Descriptions

*: QC result is outside of indicated control limits
W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.

Barbara Ball
Quality Assurance Manager

Lab Sample ID: S58792.01
Sample Tag: TW-14-02_021224
Collected Date/Time: 02/12/2024 13:05
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	02/23/24 16:11	240223A9	VS240223W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S58792.02
Sample Tag: MW-19-123_021224
Collected Date/Time: 02/12/2024 11:40
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	02/23/24 16:36	240223A9	VS240223W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S58792.03
Sample Tag: MW-20-129_021224
Collected Date/Time: 02/12/2024 14:25
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	02/23/24 15:47	240223A9	VS240223W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S58792.04

Sample Tag: MW-20-129_021224 MS

Collected Date/Time: 02/12/2024 14:25

Matrix: Groundwater

COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	02/23/24 12:52	240223A9	VS240223W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S58792.05

Sample Tag: MW-20-129_021224 MSD

Collected Date/Time: 02/12/2024 14:25

Matrix: Groundwater

COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	02/23/24 13:16	240223A9	VS240223W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S58792.06
Sample Tag: MW-19-122_021224
Collected Date/Time: 02/12/2024 15:35
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	02/23/24 17:01	240223A9	VS240223W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S58792.07
Sample Tag: PW-14-02_021324
Collected Date/Time: 02/13/2024 10:55
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	02/23/24 19:05	240223A9	VS240223W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S58792.08
Sample Tag: TW-15-12_021324
Collected Date/Time: 02/13/2024 12:40
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	02/23/24 19:30	240223A9	VS240223W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S58792.09

Sample Tag: DUP-01_021324

Collected Date/Time: 02/13/2024 00:01

Matrix: Groundwater

COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	02/23/24 19:55	240223A9	VS240223W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S58792.10
Sample Tag: MW-20-126_021224
Collected Date/Time: 02/12/2024 11:40
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	02/23/24 17:25	240223A9	VS240223W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S58792.11
Sample Tag: MW-20-127_021224
Collected Date/Time: 02/12/2024 13:40
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	02/23/24 17:51	240223A9	VS240223W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S58792.12
Sample Tag: MW-19-121_021224
Collected Date/Time: 02/12/2024 14:50
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	02/26/24 15:56	240226A9	VS240226W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S58792.13
Sample Tag: MW-16-78_021224
Collected Date/Time: 02/12/2024 15:50
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	02/26/24 16:22	240226A9	VS240226W1	Yes	BLK/LCS/LCSD

QC Report - Prep Batch Summary

Organics - Volatiles, Prep Batch ID: VS240223W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S58792.01	1,4-Dioxane	SW8260B - SIM	02/23/24 16:11	240223A9
S58792.02	1,4-Dioxane	SW8260B - SIM	02/23/24 16:36	240223A9
S58792.03	1,4-Dioxane	SW8260B - SIM	02/23/24 15:47	240223A9
S58792.04	1,4-Dioxane	SW8260B - SIM	02/23/24 12:52	240223A9
S58792.05	1,4-Dioxane	SW8260B - SIM	02/23/24 13:16	240223A9
S58792.06	1,4-Dioxane	SW8260B - SIM	02/23/24 17:01	240223A9
S58792.07	1,4-Dioxane	SW8260B - SIM	02/23/24 19:05	240223A9
S58792.08	1,4-Dioxane	SW8260B - SIM	02/23/24 19:30	240223A9
S58792.09	1,4-Dioxane	SW8260B - SIM	02/23/24 19:55	240223A9
S58792.10	1,4-Dioxane	SW8260B - SIM	02/23/24 17:25	240223A9
S58792.11	1,4-Dioxane	SW8260B - SIM	02/23/24 17:51	240223A9

Organics - Volatiles, Prep Batch ID: VS240226W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S58792.12	1,4-Dioxane	SW8260B - SIM	02/26/24 15:56	240226A9
S58792.13	1,4-Dioxane	SW8260B - SIM	02/26/24 16:22	240226A9

QC Report - Surrogates per QC Sample

Organics - Volatiles, Prep Batch ID: VS240223W1

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240223A9.BLKS23X

Run in Batch: 240223A9, Run Date: 02/23/2024 14:06, Prep Date: 02/23/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
No Surrogates				

Laboratory Control Sample (LCS)

Lab Sample ID: 240223A9.LCSS23A

Run in Batch: 240223A9, Run Date: 02/23/2024 12:01, Prep Date: 02/23/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
No Surrogates				

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240223A9.LCSDS23A, Parent Sample ID: 240223A9.LCSS23A

Run in Batch: 240223A9, Run Date: 02/23/2024 12:26, Prep Date: 02/23/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
No Surrogates				

Organics - Volatiles, Prep Batch ID: VS240226W1

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240226A9.BLKS26A

Run in Batch: 240226A9, Run Date: 02/26/2024 14:18, Prep Date: 02/26/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample (LCS)

Lab Sample ID: 240226A9.LCSS26A

Run in Batch: 240226A9, Run Date: 02/26/2024 12:14, Prep Date: 02/26/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240226A9.LCSDS26A, Parent Sample ID: 240226A9.LCSS26A

Run in Batch: 240226A9, Run Date: 02/26/2024 12:39, Prep Date: 02/26/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S58792.01

Sample Tag: TW-14-02_021224

Collected Date/Time: 02/12/2024 13:05

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 240223A9, Run Date: 02/23/2024 16:11, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**104.4**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S58792.02

Sample Tag: MW-19-123_021224

Collected Date/Time: 02/12/2024 11:40

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 240223A9, Run Date: 02/23/2024 16:36, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**108.4**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S58792.03

Sample Tag: MW-20-129_021224

Collected Date/Time: 02/12/2024 14:25

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 240223A9, Run Date: 02/23/2024 15:47, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**106.6**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S58792.06

Sample Tag: MW-19-122_021224

Collected Date/Time: 02/12/2024 15:35

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 240223A9, Run Date: 02/23/2024 17:01, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**110.1**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S58792.07

Sample Tag: PW-14-02_021324

Collected Date/Time: 02/13/2024 10:55

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 240223A9, Run Date: 02/23/2024 19:05, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**99.3**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S58792.08

Sample Tag: TW-15-12_021324

Collected Date/Time: 02/13/2024 12:40

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 240223A9, Run Date: 02/23/2024 19:30, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**109.2**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S58792.09

Sample Tag: DUP-01_021324

Collected Date/Time: 02/13/2024 00:01

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 240223A9, Run Date: 02/23/2024 19:55, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**107.1**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S58792.10

Sample Tag: MW-20-126_021224

Collected Date/Time: 02/12/2024 11:40

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 240223A9, Run Date: 02/23/2024 17:25, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**110.3**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S58792.11

Sample Tag: MW-20-127_021224

Collected Date/Time: 02/12/2024 13:40

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 240223A9, Run Date: 02/23/2024 17:51, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**109.3**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S58792.12

Sample Tag: MW-19-121_021224

Collected Date/Time: 02/12/2024 14:50

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 240226A9, Run Date: 02/26/2024 15:56, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**98.5**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S58792.13

Sample Tag: MW-16-78_021224

Collected Date/Time: 02/12/2024 15:50

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 240226A9, Run Date: 02/26/2024 16:22, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**95.7**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VS240223W1

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240223A9.BLKS23X

Run in Batch: 240223A9, Run Date: 02/23/2024 14:06, Prep Date: 02/23/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**106.5**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 240223A9.LCSS23A

Run in Batch: 240223A9, Run Date: 02/23/2024 12:01, Prep Date: 02/23/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**99.8**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240223A9.LCSDS23A, Parent Sample ID: 240223A9.LCSS23A

Run in Batch: 240223A9, Run Date: 02/23/2024 12:26, Prep Date: 02/23/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**101.4**	50.0	200.0

QC Report - Internal Standards per QC Sample

Organics - Volatiles, Prep Batch ID: VS240226W1

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240226A9.BLKS26A

Run in Batch: 240226A9, Run Date: 02/26/2024 14:18, Prep Date: 02/26/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**97.1**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 240226A9.LCSS26A

Run in Batch: 240226A9, Run Date: 02/26/2024 12:14, Prep Date: 02/26/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**98.5**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240226A9.LCSDS26A, Parent Sample ID: 240226A9.LCSS26A

Run in Batch: 240226A9, Run Date: 02/26/2024 12:39, Prep Date: 02/26/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**82.7**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VS240223W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240223A9.BLKS23X

Run in Batch: 240223A9, Run Date: 02/23/2024 14:06, Prep Date: 02/23/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
1,4-Dioxane	*	0.79	0.02	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 240223A9.LCSS23A

Run in Batch: 240223A9, Run Date: 02/23/2024 12:01, Prep Date: 02/23/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		108.5	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240223A9.LCSDS23A, Parent Sample ID: 240223A9.LCSS23A

Run in Batch: 240223A9, Run Date: 02/23/2024 12:26, Prep Date: 02/23/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		104.9	70.0	130.0	3.3	30.0

Organics - Volatiles, Prep Batch ID: VS240226W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240226A9.BLKS26A

Run in Batch: 240226A9, Run Date: 02/26/2024 14:18, Prep Date: 02/26/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
1,4-Dioxane	*	0.48	0.02	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 240226A9.LCSS26A

Run in Batch: 240226A9, Run Date: 02/26/2024 12:14, Prep Date: 02/26/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		101.9	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240226A9.LCSDS26A, Parent Sample ID: 240226A9.LCSS26A

Run in Batch: 240226A9, Run Date: 02/26/2024 12:39, Prep Date: 02/26/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		129.4	70.0	130.0	23.7	30.0

Merit Laboratories Login Checklist

Lab Set ID: S58792
Client: ARCADIS_NOVI (ARCADIS U.S., Inc.)
Project: 30214036.47B / RACER Lansing GWS
Submitted: 02/15/2024 08:00 Login User: JAL

Attention: Kaitlyn Hunt
Address: Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 2.7
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[ ] Yes	[X] No	[ ] N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	[X] Yes	[ ] No	[ ] N/A	Do sample have correct chemical preservation	
11.	[ ] Yes	[X] No	[ ] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[ ] Yes	[X] No	[ ] N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[ ] Yes	[X] No	[ ] N/A	Samples require laboratory filtration	
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[X] No	[ ] N/A	Do water VOC or TOX bottles contain headspace	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Plant 2

Merit Laboratories, Inc.
2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Tiffany Linder, Kaitlyn Hunt
COMPANY: Arcadis
ADDRESS: 28550 Cabot Drive, STE 500
CITY: Novi STATE: MI ZIP CODE: 48377
PHONE NO.: 947-777-5215 FAX NO.: P.O. NO.:
E-MAIL ADDRESS: kaitlyn.hunt@arcadis.com QUOTE NO.:

INVOICE TO

CONTACT NAME: ☒ SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: E-MAIL ADDRESS: tiffany.linder@arcadis.com

PROJECT NO./NAME: 30214036.47B / RACER Lansing GWS
SAMPLER(S) - PLEASE PRINT/SIGN NAME: BILLY J. COOPER

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☒ EDD ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐ OHIO VAP ☐ Drinking Water ☐ DoD ☐ NPDES
Project Locations: ☐ Detroit ☐ New York ☐ Other
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	1,4-Dioxane - 8260 SIMS									Special Instructions
S58792.01	2/12/24	1305	TW-14-02_021224	GW	3		3						X									
.02	2/12/24	1140	MW-19-123_021224	GW	3		3						X									
.03/.04/.05	2/12/24	1425	MW-20-129_021224	GW	9		9						X									MS/MSD
.06	2/12/24	1535	MW-19-122_021224	GW	3		3						X									
.07	2/13/24	1055	PW-14-02_021324	GW	3		3						X									
.08	2/13/24	1240	TW-15-12_021324	GW	3		3						X									
.09	2/13/24	—	DUP-01_021324	GW	3		3						X									
.10	2/12/24	1140	MW-20-126_021224	GW	3		3						X									
.11	2/12/24	1340	MW-20-127_021224	GW	3		3						X									
.12	2/12/24	1450	MW-19-121_021224	GW	3		3						X									
.13	2/12/24	1550	MW-16-78_021224	GW	3		3						X									

RELINQUISHED BY: SIGNATURE/ORGANIZATION ☒ Sampler	DATE 2-14-24	TIME 1715	
RECEIVED BY: SIGNATURE/ORGANIZATION	DATE 2/14/24	TIME 17:15	
RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE	TIME	
RECEIVED BY: SIGNATURE/ORGANIZATION	DATE	TIME	

RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	

NOTES: TEMP. ON ARRIVAL 2.7

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

Report of Analysis

Arcadis U.S., Inc.
630 Plaza Drive
Suite 600
Highlands Ranch, CO 80129
Attention: Tiffany Linder

Project Name: RACER Lansing GWS

Project Number: 30214036

Lot Number:**ZB15009**

Date Completed:03/11/2024

03/12/2024 10:29 AM
Approved and released by:
Project Manager II: **Kathy E. Smith**





The electronic signature above is the equivalent of a handwritten signature.
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Case Narrative
Arcadis U.S., Inc.
Lot Number: ZB15009

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.
Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved The NELAC Institute (TNI) standards, the Pace Analytical Services, LLC ("Pace") Laboratory Quality Manual, standard operating procedures (SOPs), and Pace policies. Additionally, the DoD QSM version 5.4 has been followed for these samples, and specifically Table B-15 was followed for all PFAS samples. Any exceptions to the TNI standards, the Laboratory Quality Manual, SOPs, the DoD QSM, or policies are qualified on the results page or discussed below.

All QC associated with these samples were compliant with DOD QSM 5.4 table B-15 and our PFAS SOP. Correction factors (CF) are used to calculate the original sample concentration. The CF is the inverse of the concentration factor (sample volume / extract final volume) times the dilution factor (DF). The CF is calculated as follows:

CF = DF * FV / Vo
FV is volume of extract (mL)
Vo is initial sample volume (mL)
DF is dilution factor. For undiluted analysis, DF = 1.

Sample concentration for aqueous samples:
Concentration (ng/L) = Cs*CF,

$$C_s = \frac{\left(\frac{(A_s x C_{is})}{A_{is}}\right) - B}{M1}$$

Where

C_s is on column concentration of target analyte in the sample (ng/L)
C_{is} is concentration of internal standard in the sample (ng/L)
A_s is peak response of target analyte in the sample
A_{is} is peak response of internal standard in the sample
M1 is the average RF from ICAL or the slope from linear regression ICAL
B is the y-intercept from the ICAL

Pace is a TNI accredited laboratory; however, the following analyses are currently not listed on our TNI scope of accreditation: E. coli and Total coliforms SM 9223 B-2004, Solid Chemical Material: TOC Walkley-Black, Biological Tissue: All, Non-Potable Water: SGT-HEM EPA 1664B, Silica EPA 200.7, Boron, Calcium, Silicon, Strontium EPA 200.8, Bicarbonate, Carbonate, and Hydroxide Alkalinity SM 2320 B-2011, SM 9221 C E-2006 & SM 9222D-2006, Strontium SW-846 6010D, VOC SM 6200 B-2011, Fecal Coliform Colilert-18. If you have any questions regarding this report, please contact the Pace Project Manager listed on the cover page.

PFAS
Samples ZB15009-007, ZB15009-008, ZB15009-009 required centrifugation prior to extraction, due to excessive solids present in the samples. Centrifugation was performed following the PFAS Aqueous Centrifuge Protocol; samples were spiked with Surrogate (SUR; Extracted Internal Standard/EIS) and shaken vigorously before being poured into a conical bottle and centrifuged. The centrifuged aqueous sample was decanted back into the original sample bottle, off of the condensed solids remaining in the centrifuge bottle. Original sample bottle was rinsed as normal and centrifuge bottle was rinsed with 4mL of MeOH. Centrifuge bottle rinsate was added to the elution. Samples concentrated to <5mL and reconstituted to 5mL using MeOH by transfer pipet.

Surrogate recovery for the following samples was outside the upper control limit: ZB15009-001, ZB15009-006, ZB15009-007, ZB15009-008, ZB15009-011, ZB15009-012, ZB15009-014, ZB15009-016. These samples did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

Surrogate recovery for the following sample was outside the upper control limit: ZB15009-003. This sample did not contain any target analytes >1/2 LOQ; therefore, re-extraction and/or re-analysis was not performed.

Sample Summary
Arcadis U.S., Inc.
Lot Number: ZB15009
Project Name: RACER Lansing GWS
Project Number: 30214036

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	MW-22-143_021224	Aqueous	02/12/2024 1500	02/15/2024
002	MW-22-145_021224	Aqueous	02/12/2024 1620	02/15/2024
003	DUP-04_021224	Aqueous	02/12/2024	02/15/2024
004	EB-01_021224	Aqueous	02/12/2024 1635	02/15/2024
005	MW-22-149_021424	Aqueous	02/14/2024 1040	02/15/2024
006	MW-22-150_021424	Aqueous	02/14/2024 1145	02/15/2024
007	MW-22-151_021424	Aqueous	02/14/2024 1300	02/15/2024
008	MW-22-152_021424	Aqueous	02/14/2024 1350	02/15/2024
009	DUP-05_021424	Aqueous	02/14/2024	02/15/2024
010	EB-02_021424	Aqueous	02/14/2024 0925	02/15/2024
011	MW-22-158_021424	Aqueous	02/14/2024 1015	02/15/2024
012	MW-22-144_021424	Aqueous	02/14/2024 1135	02/15/2024
013	MW-22-160_021424	Aqueous	02/14/2024 1245	02/15/2024
014	MW-22-146_021424	Aqueous	02/14/2024 1405	02/15/2024
015	MW-22-148_021424	Aqueous	02/14/2024 1515	02/15/2024
016	MW-22-147_021424	Aqueous	02/14/2024 1600	02/15/2024

(16 samples)

Detection Summary

Arcadis U.S., Inc.

Lot Number: ZB15009

Project Name: RACER Lansing GWS

Project Number: 30214036

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	MW-22-143_021224	Aqueous	PFBS	PFAS by ID	1.1	J	ng/L	7
001	MW-22-143_021224	Aqueous	PFBA	PFAS by ID	11		ng/L	7
001	MW-22-143_021224	Aqueous	PFHpA	PFAS by ID	5.0		ng/L	7
001	MW-22-143_021224	Aqueous	PFHxA	PFAS by ID	14		ng/L	7
001	MW-22-143_021224	Aqueous	PFOA	PFAS by ID	5.5		ng/L	7
001	MW-22-143_021224	Aqueous	PFPeA	PFAS by ID	12		ng/L	7
002	MW-22-145_021224	Aqueous	PFBS	PFAS by ID	3.4		ng/L	9
002	MW-22-145_021224	Aqueous	PFHpS	PFAS by ID	0.74	J	ng/L	9
002	MW-22-145_021224	Aqueous	PFPeS	PFAS by ID	0.78	J	ng/L	9
002	MW-22-145_021224	Aqueous	PFHxS	PFAS by ID	3.3	J	ng/L	9
002	MW-22-145_021224	Aqueous	PFBA	PFAS by ID	10		ng/L	9
002	MW-22-145_021224	Aqueous	PFHpA	PFAS by ID	14		ng/L	9
002	MW-22-145_021224	Aqueous	PFHxA	PFAS by ID	22		ng/L	9
002	MW-22-145_021224	Aqueous	PFNA	PFAS by ID	2.0	J	ng/L	9
002	MW-22-145_021224	Aqueous	PFOA	PFAS by ID	37		ng/L	9
002	MW-22-145_021224	Aqueous	PFPeA	PFAS by ID	19		ng/L	9
002	MW-22-145_021224	Aqueous	PFOS	PFAS by ID	15		ng/L	9
003	DUP-04_021224	Aqueous	6:2 FTS	PFAS by ID	4.0	J	ng/L	11
003	DUP-04_021224	Aqueous	4:2 FTS	PFAS by ID	2.1	JQ	ng/L	11
003	DUP-04_021224	Aqueous	PFBS	PFAS by ID	1.7	J	ng/L	11
003	DUP-04_021224	Aqueous	PFHxS	PFAS by ID	1.1	J	ng/L	11
003	DUP-04_021224	Aqueous	PFBA	PFAS by ID	13		ng/L	11
003	DUP-04_021224	Aqueous	PFHpA	PFAS by ID	5.3		ng/L	11
003	DUP-04_021224	Aqueous	PFHxA	PFAS by ID	16		ng/L	11
003	DUP-04_021224	Aqueous	PFOA	PFAS by ID	5.6		ng/L	11
003	DUP-04_021224	Aqueous	PFPeA	PFAS by ID	13		ng/L	11
005	MW-22-149_021424	Aqueous	PFBS	PFAS by ID	0.95	J	ng/L	15
005	MW-22-149_021424	Aqueous	PFHxS	PFAS by ID	0.52	J	ng/L	15
005	MW-22-149_021424	Aqueous	PFNA	PFAS by ID	0.57	J	ng/L	15
005	MW-22-149_021424	Aqueous	PFOA	PFAS by ID	1.4	J	ng/L	15
006	MW-22-150_021424	Aqueous	PFBA	PFAS by ID	2.7	J	ng/L	17
006	MW-22-150_021424	Aqueous	PFPeA	PFAS by ID	1.2	J	ng/L	17
007	MW-22-151_021424	Aqueous	PFBS	PFAS by ID	8.1		ng/L	19
007	MW-22-151_021424	Aqueous	PFHxS	PFAS by ID	1.8	J	ng/L	19
007	MW-22-151_021424	Aqueous	PFBA	PFAS by ID	9.9		ng/L	19
007	MW-22-151_021424	Aqueous	PFHpA	PFAS by ID	3.2	J	ng/L	19
007	MW-22-151_021424	Aqueous	PFHxA	PFAS by ID	5.2		ng/L	19
007	MW-22-151_021424	Aqueous	PFNA	PFAS by ID	0.57	J	ng/L	19
007	MW-22-151_021424	Aqueous	PFOA	PFAS by ID	6.9		ng/L	19
007	MW-22-151_021424	Aqueous	PFPeA	PFAS by ID	9.9		ng/L	19
007	MW-22-151_021424	Aqueous	PFOS	PFAS by ID	4.6		ng/L	19
008	MW-22-152_021424	Aqueous	PFBS	PFAS by ID	5.5		ng/L	21
008	MW-22-152_021424	Aqueous	PFHxS	PFAS by ID	3.2	J	ng/L	21

Detection Summary (Continued)

Lot Number: ZB15009

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
008	MW-22-152_021424	Aqueous	PFBA	PFAS by ID	5.6		ng/L	21
008	MW-22-152_021424	Aqueous	PFHpA	PFAS by ID	1.4	J	ng/L	21
008	MW-22-152_021424	Aqueous	PFHxA	PFAS by ID	3.4		ng/L	21
008	MW-22-152_021424	Aqueous	PFOA	PFAS by ID	4.0		ng/L	21
008	MW-22-152_021424	Aqueous	PFPeA	PFAS by ID	4.0		ng/L	21
009	DUP-05_021424	Aqueous	PFBS	PFAS by ID	5.6		ng/L	23
009	DUP-05_021424	Aqueous	PFHxS	PFAS by ID	3.4	J	ng/L	23
009	DUP-05_021424	Aqueous	PFBA	PFAS by ID	5.9		ng/L	23
009	DUP-05_021424	Aqueous	PFHpA	PFAS by ID	1.4	J	ng/L	23
009	DUP-05_021424	Aqueous	PFHxA	PFAS by ID	3.1	J	ng/L	23
009	DUP-05_021424	Aqueous	PFOA	PFAS by ID	3.7		ng/L	23
009	DUP-05_021424	Aqueous	PFPeA	PFAS by ID	4.2		ng/L	23
009	DUP-05_021424	Aqueous	PFOS	PFAS by ID	1.8	J	ng/L	23
011	MW-22-158_021424	Aqueous	PFBS	PFAS by ID	1.4	J	ng/L	27
011	MW-22-158_021424	Aqueous	PFBA	PFAS by ID	5.1		ng/L	27
011	MW-22-158_021424	Aqueous	PFHpA	PFAS by ID	1.1	J	ng/L	27
011	MW-22-158_021424	Aqueous	PFHxA	PFAS by ID	2.8	J	ng/L	27
011	MW-22-158_021424	Aqueous	PFOA	PFAS by ID	0.86	J	ng/L	27
011	MW-22-158_021424	Aqueous	PFPeA	PFAS by ID	2.9	J	ng/L	27
012	MW-22-144_021424	Aqueous	PFBS	PFAS by ID	2.5	J	ng/L	29
012	MW-22-144_021424	Aqueous	PFPeS	PFAS by ID	0.76	J	ng/L	29
012	MW-22-144_021424	Aqueous	PFHxS	PFAS by ID	4.4		ng/L	29
012	MW-22-144_021424	Aqueous	PFBA	PFAS by ID	7.1		ng/L	29
012	MW-22-144_021424	Aqueous	PFHpA	PFAS by ID	8.0		ng/L	29
012	MW-22-144_021424	Aqueous	PFHxA	PFAS by ID	12		ng/L	29
012	MW-22-144_021424	Aqueous	PFOA	PFAS by ID	14		ng/L	29
012	MW-22-144_021424	Aqueous	PFPeA	PFAS by ID	12		ng/L	29
012	MW-22-144_021424	Aqueous	PFOS	PFAS by ID	1.8	J	ng/L	29
013	MW-22-160_021424	Aqueous	PFBA	PFAS by ID	1.1	J	ng/L	31
014	MW-22-146_021424	Aqueous	PFBS	PFAS by ID	4.3		ng/L	33
014	MW-22-146_021424	Aqueous	PFHxS	PFAS by ID	0.81	J	ng/L	33
014	MW-22-146_021424	Aqueous	PFBA	PFAS by ID	8.7		ng/L	33
014	MW-22-146_021424	Aqueous	PFHpA	PFAS by ID	0.55	J	ng/L	33
014	MW-22-146_021424	Aqueous	PFHxA	PFAS by ID	2.0	J	ng/L	33
014	MW-22-146_021424	Aqueous	PFOA	PFAS by ID	4.0		ng/L	33
014	MW-22-146_021424	Aqueous	PFPeA	PFAS by ID	1.9	J	ng/L	33
015	MW-22-148_021424	Aqueous	PFBS	PFAS by ID	2.1	J	ng/L	35
015	MW-22-148_021424	Aqueous	PFBA	PFAS by ID	0.63	J	ng/L	35
016	MW-22-147_021424	Aqueous	PFBS	PFAS by ID	4.9		ng/L	37
016	MW-22-147_021424	Aqueous	PFHxS	PFAS by ID	1.7	J	ng/L	37
016	MW-22-147_021424	Aqueous	PFBA	PFAS by ID	7.4		ng/L	37
016	MW-22-147_021424	Aqueous	PFHpA	PFAS by ID	0.75	J	ng/L	37
016	MW-22-147_021424	Aqueous	PFHxA	PFAS by ID	1.8	J	ng/L	37
016	MW-22-147_021424	Aqueous	PFOA	PFAS by ID	2.3	J	ng/L	37
016	MW-22-147_021424	Aqueous	PFPeA	PFAS by ID	2.0	J	ng/L	37

(88 detections)

PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZB15009-001**

Description: **MW-22-143_021224** Matrix: **Aqueous**

Date Sampled: **02/12/2024 1500** Project Name: **RACER Lansing GWS**

Date Received: **02/15/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	03/07/2024 1907	ALM	03/05/2024 1607	97765

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.9	0.42	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.9	0.58	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.9	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		6.9	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	6.9	0.76	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.9	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.9	0.42	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.9	0.65	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.9	0.81	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**1.1**	**J**	**3.5**	**0.36**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.5	0.68	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.5	0.43	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.5	0.62	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.5	0.53	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.5	0.52	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.5	0.48	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**11**		**3.5**	**0.52**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.5	0.46	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.5	0.41	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**5.0**		**3.5**	**0.39**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**14**		**3.5**	**0.60**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.5	0.40	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**5.5**		**3.5**	**0.72**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**12**		**3.5**	**0.47**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.5	0.52	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.5	0.46	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.5	0.54	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.5	1.7	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	170	25-150
13C2_6:2FTS		103	25-150
13C2_8:2FTS		91	25-150
13C2_PFDoA		89	25-150
13C2_PFTeDA		109	25-150
13C3_PFBS		100	25-150
13C3_PFHxS		98	25-150
13C3-HFPO-DA		86	25-150
13C4_PFBA		68	25-150
13C4_PFHpA		95	25-150
13C5_PFHxA		87	25-150
13C5_PFPeA		92	25-150
13C6_PFDA		88	25-150
13C7_PFUdA		85	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZB15009-001**

Description: **MW-22-143_021224** Matrix: **Aqueous**

Date Sampled: **02/12/2024 1500** Project Name: **RACER Lansing GWS**

Date Received: **02/15/2024** Project Number: **30214036**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		93	25-150
13C8_PFOS		91	25-150
13C8_PFOSA		92	10-150
13C9_PFNA		102	25-150
d5-EtFOSAA		95	25-150
d3-MeFOSAA		98	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZB15009-002**

Description: **MW-22-145_021224** Matrix: **Aqueous**

Date Sampled: **02/12/2024 1620** Project Name: **RACER Lansing GWS**

Date Received: **02/15/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	03/07/2024 1939	ALM	03/05/2024 1607	97765

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.8	0.41	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.8	0.57	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.8	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		6.8	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		6.8	0.75	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.8	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.8	0.41	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.8	0.64	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.8	0.80	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**3.4**		**3.4**	**0.35**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.4	0.67	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	**375-92-8**	**PFAS by ID SOP**	**0.74**	**J**	**3.4**	**0.43**	**ng/L**	**1**
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.4	0.61	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.4	0.52	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	**2706-91-4**	**PFAS by ID SOP**	**0.78**	**J**	**3.4**	**0.51**	**ng/L**	**1**
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**3.3**	**J**	**3.4**	**0.47**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**10**		**3.4**	**0.51**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.4	0.40	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**14**		**3.4**	**0.38**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**22**		**3.4**	**0.59**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**2.0**	**J**	**3.4**	**0.40**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**37**		**3.4**	**0.71**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**19**		**3.4**	**0.47**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.4	0.54	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**15**		**3.4**	**1.7**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		126	25-150
13C2_6:2FTS		105	25-150
13C2_8:2FTS		113	25-150
13C2_PFDoA		90	25-150
13C2_PFTeDA		106	25-150
13C3_PFBS		108	25-150
13C3_PFHxS		107	25-150
13C3-HFPO-DA		98	25-150
13C4_PFBA		85	25-150
13C4_PFHpA		102	25-150
13C5_PFHxA		93	25-150
13C5_PFPeA		109	25-150
13C6_PFDA		105	25-150
13C7_PFUdA		91	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
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L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZB15009-002**

Description: **MW-22-145_021224** Matrix: **Aqueous**

Date Sampled: **02/12/2024 1620** Project Name: **RACER Lansing GWS**

Date Received: **02/15/2024** Project Number: **30214036**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		105	25-150
13C8_PFOS		97	25-150
13C8_PFOSA		99	10-150
13C9_PFNA		107	25-150
d5-EtFOSAA		95	25-150
d3-MeFOSAA		100	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZB15009-003**

Description: **DUP-04_021224** Matrix: **Aqueous**

Date Sampled: **02/12/2024** Project Name: **RACER Lansing GWS**

Date Received: **02/15/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	03/07/2024 1949	ALM	03/05/2024 1607	97765

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.7	0.40	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.7	0.56	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.7	1.3	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	**27619-97-2**	**PFAS by ID SOP**	**4.0**	**J**	**6.7**	**1.7**	**ng/L**	**1**
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	**757124-72-4**	**PFAS by ID SOP**	**2.1**	**JQ**	**6.7**	**0.73**	**ng/L**	**1**
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.7	1.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.7	0.41	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.7	0.63	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.7	0.78	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**1.7**	**J**	**3.4**	**0.35**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.4	0.65	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.4	0.42	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.4	0.60	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.4	0.50	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**1.1**	**J**	**3.4**	**0.46**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**13**		**3.4**	**0.50**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.4	0.44	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.4	0.40	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**5.3**		**3.4**	**0.38**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**16**		**3.4**	**0.58**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.4	0.39	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**5.6**		**3.4**	**0.70**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**13**		**3.4**	**0.46**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.4	0.50	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.4	0.44	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.4	0.53	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.4	1.7	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	163	25-150
13C2_6:2FTS		86	25-150
13C2_8:2FTS		79	25-150
13C2_PFDoA		67	25-150
13C2_PFTeDA		79	25-150
13C3_PFBS		80	25-150
13C3_PFHxS		77	25-150
13C3-HFPO-DA		80	25-150
13C4_PFBA		58	25-150
13C4_PFHpA		82	25-150
13C5_PFHxA		80	25-150
13C5_PFPeA		79	25-150
13C6_PFDA		68	25-150
13C7_PFUdA		70	25-150

LOQ = Limit of Quantitation
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S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZB15009-003**

Description: **DUP-04_021224** Matrix: **Aqueous**

Date Sampled: **02/12/2024** Project Name: **RACER Lansing GWS**

Date Received: **02/15/2024** Project Number: **30214036**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		85	25-150
13C8_PFOS		70	25-150
13C8_PFOSA		77	10-150
13C9_PFNA		82	25-150
d5-EtFOSAA		76	25-150
d3-MeFOSAA		69	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZB15009-004**

Description: **EB-01_021224** Matrix: **Aqueous**

Date Sampled: **02/12/2024 1635** Project Name: **RACER Lansing GWS**

Date Received: **02/15/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	03/07/2024 2000	ALM	03/05/2024 1607	97765

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		8.8	0.53	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		8.8	0.73	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		8.8	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		8.8	2.2	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		8.8	0.96	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		8.8	2.3	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		8.8	0.53	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		8.8	0.83	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		8.8	1.0	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		4.4	0.46	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		4.4	0.86	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		4.4	0.55	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		4.4	0.79	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		4.4	0.68	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		4.4	0.66	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		4.4	0.61	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		4.4	0.66	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		4.4	0.58	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		4.4	0.52	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		4.4	0.49	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		4.4	0.76	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		4.4	0.51	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		4.4	0.92	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		4.4	0.60	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		4.4	0.66	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		4.4	0.58	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		4.4	0.69	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		4.4	2.2	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		99	25-150
13C2_6:2FTS		108	25-150
13C2_8:2FTS		87	25-150
13C2_PFDoA		86	25-150
13C2_PFTeDA		91	25-150
13C3_PFBS		99	25-150
13C3_PFHxS		99	25-150
13C3-HFPO-DA		89	25-150
13C4_PFBA		94	25-150
13C4_PFHpA		106	25-150
13C5_PFHxA		91	25-150
13C5_PFPeA		98	25-150
13C6_PFDA		91	25-150
13C7_PFUdA		89	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZB15009-004**

Description: **EB-01_021224** Matrix: **Aqueous**

Date Sampled: **02/12/2024 1635** Project Name: **RACER Lansing GWS**

Date Received: **02/15/2024** Project Number: **30214036**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		102	25-150
13C8_PFOS		89	25-150
13C8_PFOSA		90	10-150
13C9_PFNA		107	25-150
d5-EtFOSAA		95	25-150
d3-MeFOSAA		96	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZB15009-005**

Description: **MW-22-149_021424** Matrix: **Aqueous**

Date Sampled: **02/14/2024 1040** Project Name: **RACER Lansing GWS**

Date Received: **02/15/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	03/07/2024 2011	ALM	03/05/2024 1607	97765

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.9	0.42	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.9	0.57	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.9	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		6.9	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		6.9	0.75	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.9	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.9	0.42	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.9	0.65	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.9	0.80	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**0.95**	**J**	**3.4**	**0.36**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.4	0.67	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.4	0.43	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.4	0.61	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.4	0.53	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**0.52**	**J**	**3.4**	**0.48**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		3.4	0.52	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.4	0.41	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.4	0.39	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.4	0.59	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**0.57**	**J**	**3.4**	**0.40**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**1.4**	**J**	**3.4**	**0.71**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.4	0.47	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.4	0.52	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.4	0.46	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.4	0.54	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.4	1.7	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		111	25-150
13C2_6:2FTS		112	25-150
13C2_8:2FTS		107	25-150
13C2_PFDoA		103	25-150
13C2_PFTeDA		106	25-150
13C3_PFBS		107	25-150
13C3_PFHxS		107	25-150
13C3-HFPO-DA		94	25-150
13C4_PFBA		96	25-150
13C4_PFHpA		108	25-150
13C5_PFHxA		103	25-150
13C5_PFPeA		111	25-150
13C6_PFDA		107	25-150
13C7_PFUdA		91	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**
Laboratory ID: **ZB15009-005**
Description: **MW-22-149_021424**
Matrix: **Aqueous**
Date Sampled: **02/14/2024 1040**
Project Name: **RACER Lansing GWS**
Date Received: **02/15/2024**
Project Number: **30214036**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		111	25-150
13C8_PFOS		95	25-150
13C8_PFOSA		100	10-150
13C9_PFNA		106	25-150
d5-EtFOSAA		103	25-150
d3-MeFOSAA		98	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZB15009-006**

Description: **MW-22-150_021424** Matrix: **Aqueous**

Date Sampled: **02/14/2024 1145** Project Name: **RACER Lansing GWS**

Date Received: **02/15/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	03/07/2024 2021	ALM	03/05/2024 1607	97765

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.9	0.41	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.9	0.57	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.9	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	6.9	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	6.9	0.75	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.9	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.9	0.42	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.9	0.64	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.9	0.80	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.4	0.36	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.4	0.67	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.4	0.43	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.4	0.61	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.4	0.53	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.4	0.47	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**2.7**	**J**	**3.4**	**0.52**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.4	0.41	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.4	0.38	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.4	0.59	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.4	0.40	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.4	0.71	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**1.2**	**J**	**3.4**	**0.47**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.4	0.54	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.4	1.7	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	273	25-150
13C2_6:2FTS	N	179	25-150
13C2_8:2FTS		101	25-150
13C2_PFDoA		96	25-150
13C2_PFTeDA		108	25-150
13C3_PFBS		95	25-150
13C3_PFHxS		109	25-150
13C3-HFPO-DA		78	25-150
13C4_PFBA		44	25-150
13C4_PFHpA		96	25-150
13C5_PFHxA		92	25-150
13C5_PFPeA		76	25-150
13C6_PFDA		97	25-150
13C7_PFUdA		91	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZB15009-006**

Description: **MW-22-150_021424** Matrix: **Aqueous**

Date Sampled: **02/14/2024 1145** Project Name: **RACER Lansing GWS**

Date Received: **02/15/2024** Project Number: **30214036**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		113	25-150
13C8_PFOS		101	25-150
13C8_PFOSA		101	10-150
13C9_PFNA		113	25-150
d5-EtFOSAA		96	25-150
d3-MeFOSAA		103	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZB15009-007**

Description: **MW-22-151_021424** Matrix: **Aqueous**

Date Sampled: **02/14/2024 1300** Project Name: **RACER Lansing GWS**

Date Received: **02/15/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	03/07/2024 2032	ALM	03/05/2024 1607	97765

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.3	0.44	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.3	0.60	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND	Q	7.3	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.3	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.3	0.79	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.3	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.3	0.44	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.3	0.68	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.3	0.85	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**8.1**		**3.6**	**0.38**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.6	0.71	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.6	0.45	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.6	0.65	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.6	0.56	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.6	0.54	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**1.8**	**J**	**3.6**	**0.50**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**9.9**		**3.6**	**0.54**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.6	0.48	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.6	0.43	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**3.2**	**J**	**3.6**	**0.41**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**5.2**		**3.6**	**0.62**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**0.57**	**J**	**3.6**	**0.42**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**6.9**		**3.6**	**0.75**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**9.9**		**3.6**	**0.49**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.6	0.54	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.6	0.48	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.6	0.57	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**4.6**		**3.6**	**1.8**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	240	25-150
13C2_6:2FTS	N	201	25-150
13C2_8:2FTS	N	151	25-150
13C2_PFDoA		79	25-150
13C2_PFTeDA		72	25-150
13C3_PFBS		80	25-150
13C3_PFHxS		93	25-150
13C3-HFPO-DA		63	25-150
13C4_PFBA		39	25-150
13C4_PFHpA		74	25-150
13C5_PFHxA		74	25-150
13C5_PFPeA		60	25-150
13C6_PFDA		94	25-150
13C7_PFUdA		80	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZB15009-007**

Description: **MW-22-151_021424** Matrix: **Aqueous**

Date Sampled: **02/14/2024 1300** Project Name: **RACER Lansing GWS**

Date Received: **02/15/2024** Project Number: **30214036**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		95	25-150
13C8_PFOS		84	25-150
13C8_PFOSA		92	10-150
13C9_PFNA		97	25-150
d5-EtFOSAA		89	25-150
d3-MeFOSAA		100	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZB15009-008**

Description: **MW-22-152_021424** Matrix: **Aqueous**

Date Sampled: **02/14/2024 1350** Project Name: **RACER Lansing GWS**

Date Received: **02/15/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	03/07/2024 2042	ALM	03/05/2024 1607	97765

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.7	0.40	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.7	0.55	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.7	1.3	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		6.7	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	6.7	0.73	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.7	1.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.7	0.40	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.7	0.63	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.7	0.78	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**5.5**		**3.3**	**0.35**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.3	0.65	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.3	0.42	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.3	0.60	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.3	0.51	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.3	0.50	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**3.2**	**J**	**3.3**	**0.46**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**5.6**		**3.3**	**0.50**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.3	0.44	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.3	0.39	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**1.4**	**J**	**3.3**	**0.37**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**3.4**		**3.3**	**0.58**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.3	0.39	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**4.0**		**3.3**	**0.69**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**4.0**		**3.3**	**0.46**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.3	0.50	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.3	0.44	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.3	0.52	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.3	1.7	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	177	25-150
13C2_6:2FTS		115	25-150
13C2_8:2FTS		98	25-150
13C2_PFDoA		80	25-150
13C2_PFTeDA		77	25-150
13C3_PFBS		100	25-150
13C3_PFHxS		101	25-150
13C3-HFPO-DA		89	25-150
13C4_PFBA		76	25-150
13C4_PFHpA		98	25-150
13C5_PFHxA		92	25-150
13C5_PFPeA		91	25-150
13C6_PFDA		89	25-150
13C7_PFUdA		86	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
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H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZB15009-008**

Description: **MW-22-152_021424** Matrix: **Aqueous**

Date Sampled: **02/14/2024 1350** Project Name: **RACER Lansing GWS**

Date Received: **02/15/2024** Project Number: **30214036**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		95	25-150
13C8_PFOS		92	25-150
13C8_PFOSA		94	10-150
13C9_PFNA		103	25-150
d5-EtFOSAA		86	25-150
d3-MeFOSAA		90	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
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P = The RPD between two GC columns exceeds 40%
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZB15009-009**

Description: **DUP-05_021424** Matrix: **Aqueous**

Date Sampled: **02/14/2024** Project Name: **RACER Lansing GWS**

Date Received: **02/15/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	03/07/2024 2053	ALM	03/05/2024 1607	97765

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.0	0.42	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.0	0.58	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.0	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.0	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.0	0.76	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.0	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.0	0.42	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.0	0.65	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.0	0.81	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**5.6**		**3.5**	**0.36**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.5	0.68	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.5	0.43	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.5	0.62	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.5	0.53	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.5	0.52	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**3.4**	**J**	**3.5**	**0.48**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**5.9**		**3.5**	**0.52**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.5	0.46	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.5	0.41	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**1.4**	**J**	**3.5**	**0.39**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**3.1**	**J**	**3.5**	**0.60**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.5	0.40	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**3.7**		**3.5**	**0.72**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**4.2**		**3.5**	**0.47**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.5	0.52	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.5	0.46	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.5	0.54	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**1.8**	**J**	**3.5**	**1.7**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		146	25-150
13C2_6:2FTS		99	25-150
13C2_8:2FTS		87	25-150
13C2_PFDoA		74	25-150
13C2_PFTeDA		75	25-150
13C3_PFBS		97	25-150
13C3_PFHxS		88	25-150
13C3-HFPO-DA		85	25-150
13C4_PFBA		72	25-150
13C4_PFHpA		93	25-150
13C5_PFHxA		88	25-150
13C5_PFPeA		87	25-150
13C6_PFDA		83	25-150
13C7_PFUdA		75	25-150

LOQ = Limit of Quantitation
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E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZB15009-009**

Description: **DUP-05_021424** Matrix: **Aqueous**

Date Sampled: **02/14/2024** Project Name: **RACER Lansing GWS**

Date Received: **02/15/2024** Project Number: **30214036**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		100	25-150
13C8_PFOS		79	25-150
13C8_PFOSA		88	10-150
13C9_PFNA		86	25-150
d5-EtFOSAA		82	25-150
d3-MeFOSAA		86	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZB15009-010**

Description: **EB-02_021424** Matrix: **Aqueous**

Date Sampled: **02/14/2024 0925** Project Name: **RACER Lansing GWS**

Date Received: **02/15/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	03/07/2024 2104	ALM	03/05/2024 1607	97765

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		8.6	0.52	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		8.6	0.72	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		8.6	1.7	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		8.6	2.2	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		8.6	0.94	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		8.6	2.2	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		8.6	0.52	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		8.6	0.81	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		8.6	1.0	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		4.3	0.45	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		4.3	0.84	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		4.3	0.54	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		4.3	0.77	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		4.3	0.66	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		4.3	0.64	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		4.3	0.60	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		4.3	0.65	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		4.3	0.57	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		4.3	0.51	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		4.3	0.48	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		4.3	0.74	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		4.3	0.50	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		4.3	0.89	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		4.3	0.59	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		4.3	0.65	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		4.3	0.57	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		4.3	0.68	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		4.3	2.2	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		108	25-150
13C2_6:2FTS		111	25-150
13C2_8:2FTS		96	25-150
13C2_PFDoA		88	25-150
13C2_PFTeDA		80	25-150
13C3_PFBS		99	25-150
13C3_PFHxS		101	25-150
13C3-HFPO-DA		90	25-150
13C4_PFBA		96	25-150
13C4_PFHpA		97	25-150
13C5_PFHxA		92	25-150
13C5_PFPeA		98	25-150
13C6_PFDA		87	25-150
13C7_PFUdA		88	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZB15009-010**

Description: **EB-02_021424** Matrix: **Aqueous**

Date Sampled: **02/14/2024 0925** Project Name: **RACER Lansing GWS**

Date Received: **02/15/2024** Project Number: **30214036**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		108	25-150
13C8_PFOS		87	25-150
13C8_PFOSA		92	10-150
13C9_PFNA		96	25-150
d5-EtFOSAA		91	25-150
d3-MeFOSAA		88	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZB15009-011**

Description: **MW-22-158_021424** Matrix: **Aqueous**

Date Sampled: **02/14/2024 1015** Project Name: **RACER Lansing GWS**

Date Received: **02/15/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	03/07/2024 2114	ALM	03/05/2024 1607	97765

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.7	0.41	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.7	0.56	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.7	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		6.7	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	6.7	0.74	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.7	1.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.7	0.41	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.7	0.63	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.7	0.79	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**1.4**	**J**	**3.4**	**0.35**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.4	0.66	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.4	0.42	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.4	0.60	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.4	0.52	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.4	0.50	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.4	0.46	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**5.1**		**3.4**	**0.51**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.4	0.44	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.4	0.40	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**1.1**	**J**	**3.4**	**0.38**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**2.8**	**J**	**3.4**	**0.58**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.4	0.39	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**0.86**	**J**	**3.4**	**0.70**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**2.9**	**J**	**3.4**	**0.46**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.4	0.50	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.4	0.53	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.4	1.7	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	153	25-150
13C2_6:2FTS		103	25-150
13C2_8:2FTS		85	25-150
13C2_PFDoA		72	25-150
13C2_PFTeDA		79	25-150
13C3_PFBS		91	25-150
13C3_PFHxS		93	25-150
13C3-HFPO-DA		82	25-150
13C4_PFBA		64	25-150
13C4_PFHpA		92	25-150
13C5_PFHxA		87	25-150
13C5_PFPeA		86	25-150
13C6_PFDA		82	25-150
13C7_PFUdA		72	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZB15009-011**

Description: **MW-22-158_021424** Matrix: **Aqueous**

Date Sampled: **02/14/2024 1015** Project Name: **RACER Lansing GWS**

Date Received: **02/15/2024** Project Number: **30214036**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		93	25-150
13C8_PFOS		83	25-150
13C8_PFOSA		86	10-150
13C9_PFNA		85	25-150
d5-EtFOSAA		75	25-150
d3-MeFOSAA		84	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
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P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
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S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZB15009-012**

Description: **MW-22-144_021424** Matrix: **Aqueous**

Date Sampled: **02/14/2024 1135** Project Name: **RACER Lansing GWS**

Date Received: **02/15/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	03/07/2024 2146	ALM	03/05/2024 1607	97765

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.9	0.41	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.9	0.57	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.9	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		6.9	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	6.9	0.75	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.9	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.9	0.41	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.9	0.64	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.9	0.80	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**2.5**	**J**	**3.4**	**0.36**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.4	0.67	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.4	0.43	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.4	0.61	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.4	0.53	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	**2706-91-4**	**PFAS by ID SOP**	**0.76**	**J**	**3.4**	**0.51**	**ng/L**	**1**
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**4.4**		**3.4**	**0.47**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**7.1**		**3.4**	**0.51**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.4	0.40	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**8.0**		**3.4**	**0.38**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**12**		**3.4**	**0.59**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.4	0.40	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**14**		**3.4**	**0.71**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**12**		**3.4**	**0.47**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.4	0.54	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**1.8**	**J**	**3.4**	**1.7**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	153	25-150
13C2_6:2FTS		131	25-150
13C2_8:2FTS		96	25-150
13C2_PFDoA		86	25-150
13C2_PFTeDA		96	25-150
13C3_PFBS		106	25-150
13C3_PFHxS		105	25-150
13C3-HFPO-DA		98	25-150
13C4_PFBA		80	25-150
13C4_PFHpA		99	25-150
13C5_PFHxA		96	25-150
13C5_PFPeA		102	25-150
13C6_PFDA		83	25-150
13C7_PFUdA		87	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZB15009-012**

Description: **MW-22-144_021424** Matrix: **Aqueous**

Date Sampled: **02/14/2024 1135** Project Name: **RACER Lansing GWS**

Date Received: **02/15/2024** Project Number: **30214036**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		113	25-150
13C8_PFOS		108	25-150
13C8_PFOSA		94	10-150
13C9_PFNA		102	25-150
d5-EtFOSAA		87	25-150
d3-MeFOSAA		92	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZB15009-013**

Description: **MW-22-160_021424** Matrix: **Aqueous**

Date Sampled: **02/14/2024 1245** Project Name: **RACER Lansing GWS**

Date Received: **02/15/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	03/07/2024 2157	ALM	03/05/2024 1607	97765

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.3	0.44	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.3	0.60	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.3	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.3	0.79	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.3	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.3	0.44	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.3	0.68	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.3	0.85	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.6	0.38	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.6	0.71	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.6	0.45	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.6	0.65	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.6	0.56	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.6	0.54	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.6	0.50	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**1.1**	**J**	**3.6**	**0.54**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.6	0.48	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.6	0.43	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.6	0.41	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.6	0.62	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.6	0.42	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.6	0.75	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.6	0.49	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.6	0.54	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.6	0.48	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.6	0.57	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.6	1.8	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		140	25-150
13C2_6:2FTS		126	25-150
13C2_8:2FTS		99	25-150
13C2_PFDoA		99	25-150
13C2_PFTeDA		109	25-150
13C3_PFBS		113	25-150
13C3_PFHxS		102	25-150
13C3-HFPO-DA		106	25-150
13C4_PFBA		77	25-150
13C4_PFHpA		113	25-150
13C5_PFHxA		99	25-150
13C5_PFPeA		109	25-150
13C6_PFDA		103	25-150
13C7_PFUdA		91	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZB15009-013**

Description: **MW-22-160_021424** Matrix: **Aqueous**

Date Sampled: **02/14/2024 1245** Project Name: **RACER Lansing GWS**

Date Received: **02/15/2024** Project Number: **30214036**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		108	25-150
13C8_PFOS		105	25-150
13C8_PFOSA		101	10-150
13C9_PFNA		106	25-150
d5-EtFOSAA		107	25-150
d3-MeFOSAA		102	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZB15009-014**

Description: **MW-22-146_021424** Matrix: **Aqueous**

Date Sampled: **02/14/2024 1405** Project Name: **RACER Lansing GWS**

Date Received: **02/15/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	03/07/2024 2229	ALM	03/05/2024 1607	97765

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.4	0.45	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.4	0.61	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.4	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.4	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.4	0.81	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.4	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.4	0.45	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.4	0.69	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.4	0.86	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**4.3**		**3.7**	**0.38**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.7	0.72	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.7	0.46	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.7	0.66	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.7	0.57	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.7	0.55	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**0.81**	**J**	**3.7**	**0.51**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**8.7**		**3.7**	**0.55**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.7	0.48	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.7	0.44	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**0.55**	**J**	**3.7**	**0.41**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**2.0**	**J**	**3.7**	**0.64**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.7	0.43	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**4.0**		**3.7**	**0.77**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**1.9**	**J**	**3.7**	**0.50**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.7	0.55	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.7	0.49	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.7	0.58	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.7	1.8	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	204	25-150
13C2_6:2FTS	N	193	25-150
13C2_8:2FTS		128	25-150
13C2_PFDoA		88	25-150
13C2_PFTeDA		92	25-150
13C3_PFBS		73	25-150
13C3_PFHxS		92	25-150
13C3-HFPO-DA		74	25-150
13C4_PFBA		32	25-150
13C4_PFHpA		88	25-150
13C5_PFHxA		77	25-150
13C5_PFPeA		60	25-150
13C6_PFDA		95	25-150
13C7_PFUdA		97	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZB15009-014**

Description: **MW-22-146_021424** Matrix: **Aqueous**

Date Sampled: **02/14/2024 1405** Project Name: **RACER Lansing GWS**

Date Received: **02/15/2024** Project Number: **30214036**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		102	25-150
13C8_PFOS		89	25-150
13C8_PFOSA		86	10-150
13C9_PFNA		99	25-150
d5-EtFOSAA		86	25-150
d3-MeFOSAA		98	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZB15009-015**

Description: **MW-22-148_021424** Matrix: **Aqueous**

Date Sampled: **02/14/2024 1515** Project Name: **RACER Lansing GWS**

Date Received: **02/15/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	03/07/2024 2240	ALM	03/05/2024 1607	97765

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.8	0.41	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.8	0.57	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.8	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		6.8	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		6.8	0.74	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.8	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.8	0.41	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.8	0.64	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.8	0.79	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**2.1**	**J**	**3.4**	**0.35**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.4	0.66	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.4	0.43	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.4	0.61	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.4	0.52	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.4	0.47	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**0.63**	**J**	**3.4**	**0.51**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.4	0.40	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.4	0.38	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.4	0.59	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.4	0.39	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.4	0.71	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.4	0.46	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.4	0.53	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.4	1.7	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		150	25-150
13C2_6:2FTS		125	25-150
13C2_8:2FTS		95	25-150
13C2_PFDoA		89	25-150
13C2_PFTeDA		104	25-150
13C3_PFBS		113	25-150
13C3_PFHxS		118	25-150
13C3-HFPO-DA		104	25-150
13C4_PFBA		66	25-150
13C4_PFHpA		106	25-150
13C5_PFHxA		103	25-150
13C5_PFPeA		108	25-150
13C6_PFDA		96	25-150
13C7_PFUdA		94	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
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L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**
Laboratory ID: **ZB15009-015**
Description: **MW-22-148_021424**
Matrix: **Aqueous**
Date Sampled: **02/14/2024 1515**
Project Name: **RACER Lansing GWS**
Date Received: **02/15/2024**
Project Number: **30214036**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		115	25-150
13C8_PFOS		99	25-150
13C8_PFOSA		94	10-150
13C9_PFNA		100	25-150
d5-EtFOSAA		99	25-150
d3-MeFOSAA		102	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZB15009-016**

Description: **MW-22-147_021424** Matrix: **Aqueous**

Date Sampled: **02/14/2024 1600** Project Name: **RACER Lansing GWS**

Date Received: **02/15/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	03/07/2024 2250	ALM	03/05/2024 1607	97765

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.1	0.43	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.1	0.59	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.1	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.1	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.1	0.78	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.1	0.43	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.1	0.67	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.1	0.83	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**4.9**		**3.6**	**0.37**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.6	0.69	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.6	0.44	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.6	0.63	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.6	0.55	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.6	0.53	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**1.7**	**J**	**3.6**	**0.49**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**7.4**		**3.6**	**0.53**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.6	0.47	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.6	0.42	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**0.75**	**J**	**3.6**	**0.40**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**1.8**	**J**	**3.6**	**0.61**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.6	0.41	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**2.3**	**J**	**3.6**	**0.74**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**2.0**	**J**	**3.6**	**0.48**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.6	0.53	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.6	0.47	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.6	0.56	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.6	1.8	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	224	25-150
13C2_6:2FTS	N	156	25-150
13C2_8:2FTS		104	25-150
13C2_PFDoA		95	25-150
13C2_PFTeDA		114	25-150
13C3_PFBS		108	25-150
13C3_PFHxS		113	25-150
13C3-HFPO-DA		95	25-150
13C4_PFBA		70	25-150
13C4_PFHpA		105	25-150
13C5_PFHxA		110	25-150
13C5_PFPeA		103	25-150
13C6_PFDA		105	25-150
13C7_PFUdA		105	25-150

LOQ = Limit of Quantitation
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Q = Surrogate failure
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P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZB15009-016**

Description: **MW-22-147_021424** Matrix: **Aqueous**

Date Sampled: **02/14/2024 1600** Project Name: **RACER Lansing GWS**

Date Received: **02/15/2024** Project Number: **30214036**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		118	25-150
13C8_PFOS		105	25-150
13C8_PFOSA		107	10-150
13C9_PFNA		121	25-150
d5-EtFOSAA		101	25-150
d3-MeFOSAA		112	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

QC Summary

PFAS by LC/MS/MS - MB

Sample ID: ZQ97765-001
Batch: 97765
Analytical Method: PFAS by ID SOP
Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/05/2024 1607

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
9Cl-PF3ONS	ND		1	8.0	0.48	ng/L	03/07/2024 1835
11Cl-PF3OUdS	ND		1	8.0	0.66	ng/L	03/07/2024 1835
8:2 FTS	ND		1	8.0	1.6	ng/L	03/07/2024 1835
6:2 FTS	ND		1	8.0	2.0	ng/L	03/07/2024 1835
4:2 FTS	ND		1	8.0	0.87	ng/L	03/07/2024 1835
GenX	ND		1	8.0	2.1	ng/L	03/07/2024 1835
ADONA	ND		1	8.0	0.48	ng/L	03/07/2024 1835
EtFOSAA	ND		1	8.0	0.75	ng/L	03/07/2024 1835
MeFOSAA	ND		1	8.0	0.93	ng/L	03/07/2024 1835
PFBS	ND		1	4.0	0.41	ng/L	03/07/2024 1835
PFDS	ND		1	4.0	0.78	ng/L	03/07/2024 1835
PFHpS	ND		1	4.0	0.50	ng/L	03/07/2024 1835
PFNS	ND		1	4.0	0.71	ng/L	03/07/2024 1835
PFOSA	ND		1	4.0	0.61	ng/L	03/07/2024 1835
PFPeS	ND		1	4.0	0.59	ng/L	03/07/2024 1835
PFHxS	ND		1	4.0	0.55	ng/L	03/07/2024 1835
PFBA	ND		1	4.0	0.60	ng/L	03/07/2024 1835
PFDA	ND		1	4.0	0.52	ng/L	03/07/2024 1835
PFDoA	ND		1	4.0	0.47	ng/L	03/07/2024 1835
PFHpA	ND		1	4.0	0.45	ng/L	03/07/2024 1835
PFHxA	ND		1	4.0	0.69	ng/L	03/07/2024 1835
PFNA	ND		1	4.0	0.46	ng/L	03/07/2024 1835
PFOA	ND		1	4.0	0.83	ng/L	03/07/2024 1835
PFPeA	ND		1	4.0	0.54	ng/L	03/07/2024 1835
PFTeDA	ND		1	4.0	0.60	ng/L	03/07/2024 1835
PFTrDA	ND		1	4.0	0.53	ng/L	03/07/2024 1835
PFUdA	ND		1	4.0	0.63	ng/L	03/07/2024 1835
PFOS	ND		1	4.0	2.0	ng/L	03/07/2024 1835

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		104	25-150
13C2_6:2FTS		111	25-150
13C2_8:2FTS		116	25-150
13C2_PFDoA		104	25-150
13C2_PFTeDA		122	25-150
13C3_PFBS		114	25-150
13C3_PFHxS		116	25-150
13C3-HFPO-DA		115	25-150
13C4_PFBA		110	25-150
13C4_PFHpA		110	25-150
13C5_PFHxA		100	25-150
13C5_PFPeA		118	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: ZQ97765-001
Batch: 97765
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/05/2024 1607

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		106	25-150
13C7_PFUdA		102	25-150
13C8_PFOA		118	25-150
13C8_PFOS		105	25-150
13C8_PFOSA		104	10-150
13C9_PFNA		120	25-150
d5-EtFOSAA		114	25-150
d3-MeFOSAA		119	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ97765-002
Batch: 97765
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/05/2024 1607

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	16		1	105	50-150	03/07/2024 1846
11Cl-PF3OUdS	15	16		1	104	50-150	03/07/2024 1846
8:2 FTS	15	19		1	122	50-150	03/07/2024 1846
6:2 FTS	15	15		1	101	50-150	03/07/2024 1846
4:2 FTS	15	17		1	115	50-150	03/07/2024 1846
GenX	32	30		1	95	50-150	03/07/2024 1846
ADONA	15	16		1	105	50-150	03/07/2024 1846
EtFOSAA	16	16		1	99	50-150	03/07/2024 1846
MeFOSAA	16	18		1	113	50-150	03/07/2024 1846
PFBS	14	16		1	111	50-150	03/07/2024 1846
PFDS	15	17		1	110	50-150	03/07/2024 1846
PFHpS	15	15		1	102	50-150	03/07/2024 1846
PFNS	15	16		1	106	50-150	03/07/2024 1846
PFOSA	16	18		1	113	50-150	03/07/2024 1846
PFPeS	15	16		1	106	50-150	03/07/2024 1846
PFHxS	15	15		1	103	50-150	03/07/2024 1846
PFBA	16	17		1	108	50-150	03/07/2024 1846
PFDA	16	16		1	101	50-150	03/07/2024 1846
PFDoA	16	17		1	108	50-150	03/07/2024 1846
PFHpA	16	18		1	111	50-150	03/07/2024 1846
PFHxA	16	16		1	100	50-150	03/07/2024 1846
PFNA	16	17		1	107	50-150	03/07/2024 1846
PFOA	16	16		1	100	50-150	03/07/2024 1846
PFPeA	16	16		1	102	50-150	03/07/2024 1846
PFTeDA	16	19		1	117	50-150	03/07/2024 1846
PFTrDA	16	16		1	97	50-150	03/07/2024 1846
PFUdA	16	18		1	110	50-150	03/07/2024 1846
PFOS	15	18		1	118	50-150	03/07/2024 1846

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		95	25-150
13C2_6:2FTS		109	25-150
13C2_8:2FTS		97	25-150
13C2_PFDoA		87	25-150
13C2_PFTeDA		85	25-150
13C3_PFBS		96	25-150
13C3_PFHxS		100	25-150
13C3-HFPO-DA		93	25-150
13C4_PFBA		95	25-150
13C4_PFHpA		98	25-150
13C5_PFHxA		96	25-150
13C5_PFPeA		103	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ97765-002
Batch: 97765
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/05/2024 1607

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		89	25-150
13C7_PFUdA		83	25-150
13C8_PFOA		102	25-150
13C8_PFOS		83	25-150
13C8_PFOSA		89	10-150
13C9_PFNA		99	25-150
d5-EtFOSAA		99	25-150
d3-MeFOSAA		92	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID: ZB15009-013MS
Batch: 97765
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/05/2024 1607

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	ND	12	11		1	90	50-150	03/07/2024 2208
11Cl-PF3OUdS	ND	13	11		1	88	50-150	03/07/2024 2208
8:2 FTS	ND	13	13		1	105	50-150	03/07/2024 2208
6:2 FTS	ND	13	14		1	110	50-150	03/07/2024 2208
4:2 FTS	ND	12	13		1	101	50-150	03/07/2024 2208
GenX	ND	27	29		1	110	50-150	03/07/2024 2208
ADONA	ND	13	15		1	115	50-150	03/07/2024 2208
EtFOSAA	ND	13	15		1	113	50-150	03/07/2024 2208
MeFOSAA	ND	13	14		1	104	50-150	03/07/2024 2208
PFBS	ND	12	12		1	104	50-150	03/07/2024 2208
PFDS	ND	13	12		1	92	50-150	03/07/2024 2208
PFHpS	ND	13	14		1	112	50-150	03/07/2024 2208
PFNS	ND	13	11		1	89	50-150	03/07/2024 2208
PFOSA	ND	13	14		1	104	50-150	03/07/2024 2208
PFPeS	ND	13	12		1	98	50-150	03/07/2024 2208
PFHxS	ND	12	13		1	111	50-150	03/07/2024 2208
PFBA	1.1	13	16		1	110	50-150	03/07/2024 2208
PFDA	ND	13	13		1	99	50-150	03/07/2024 2208
PFDoA	ND	13	14		1	107	50-150	03/07/2024 2208
PFHpA	ND	13	14		1	108	50-150	03/07/2024 2208
PFHxA	ND	13	15		1	110	50-150	03/07/2024 2208
PFNA	ND	13	15		1	109	50-150	03/07/2024 2208
PFOA	ND	13	15		1	114	50-150	03/07/2024 2208
PFPeA	ND	13	16		1	116	50-150	03/07/2024 2208
PFTeDA	ND	13	14		1	107	50-150	03/07/2024 2208
PFTrDA	ND	13	16		1	118	50-150	03/07/2024 2208
PFUdA	ND	13	16		1	116	50-150	03/07/2024 2208
PFOS	ND	12	14		1	110	50-150	03/07/2024 2208

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		134	25-150
13C2_6:2FTS		97	25-150
13C2_8:2FTS		89	25-150
13C2_PFDoA		78	25-150
13C2_PFTeDA		96	25-150
13C3_PFBS		98	25-150
13C3_PFHxS		92	25-150
13C3-HFPO-DA		88	25-150
13C4_PFBA		67	25-150
13C4_PFHpA		99	25-150
13C5_PFHxA		92	25-150
13C5_PFPeA		92	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID: ZB15009-013MS
Batch: 97765
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/05/2024 1607

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		90	25-150
13C7_PFUdA		74	25-150
13C8_PFOA		93	25-150
13C8_PFOS		85	25-150
13C8_PFOSA		85	10-150
13C9_PFNA		89	25-150
d5-EtFOSAA		84	25-150
d3-MeFOSAA		83	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MSD

Sample ID: ZB15009-013MD
Batch: 97765
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/05/2024 1607

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
9Cl-PF3ONS	ND	13	12		1	92	2.9	50-150	30	03/07/2024 2218
11Cl-PF3OUdS	ND	13	10		1	82	5.4	50-150	30	03/07/2024 2218
8:2 FTS	ND	13	16		1	124	18	50-150	30	03/07/2024 2218
6:2 FTS	ND	13	11		1	88	21	50-150	30	03/07/2024 2218
4:2 FTS	ND	13	14		1	111	11	50-150	30	03/07/2024 2218
GenX	ND	27	26		1	98	11	50-150	30	03/07/2024 2218
ADONA	ND	13	15		1	118	3.1	50-150	30	03/07/2024 2218
EtFOSAA	ND	13	13		1	98	13	50-150	30	03/07/2024 2218
MeFOSAA	ND	13	14		1	103	0.27	50-150	30	03/07/2024 2218
PFBS	ND	12	13		1	106	3.0	50-150	30	03/07/2024 2218
PFDS	ND	13	11		1	86	6.3	50-150	30	03/07/2024 2218
PFHpS	ND	13	15		1	113	2.0	50-150	30	03/07/2024 2218
PFNS	ND	13	13		1	99	12	50-150	30	03/07/2024 2218
PFOSA	ND	13	14		1	104	0.45	50-150	30	03/07/2024 2218
PFPeS	ND	13	13		1	103	6.5	50-150	30	03/07/2024 2218
PFHxS	ND	12	13		1	108	1.7	50-150	30	03/07/2024 2218
PFBA	1.1	13	14		1	99	9.0	50-150	30	03/07/2024 2218
PFDA	ND	13	14		1	107	9.2	50-150	30	03/07/2024 2218
PFDoA	ND	13	13		1	98	7.3	50-150	30	03/07/2024 2218
PFHpA	ND	13	14		1	107	0.067	50-150	30	03/07/2024 2218
PFHxA	ND	13	14		1	104	3.8	50-150	30	03/07/2024 2218
PFNA	ND	13	14		1	102	5.9	50-150	30	03/07/2024 2218
PFOA	ND	13	14		1	107	5.6	50-150	30	03/07/2024 2218
PFPeA	ND	13	15		1	114	1.1	50-150	30	03/07/2024 2218
PFTeDA	ND	13	13		1	100	6.2	50-150	30	03/07/2024 2218
PFTrDA	ND	13	14		1	104	11	50-150	30	03/07/2024 2218
PFUdA	ND	13	13		1	99	15	50-150	30	03/07/2024 2218
PFOS	ND	13	13		1	102	6.6	50-150	30	03/07/2024 2218

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		127	25-150
13C2_6:2FTS		108	25-150
13C2_8:2FTS		90	25-150
13C2_PFDoA		79	25-150
13C2_PFTeDA		92	25-150
13C3_PFBS		100	25-150
13C3_PFHxS		95	25-150
13C3-HFPO-DA		92	25-150
13C4_PFBA		72	25-150
13C4_PFHpA		97	25-150
13C5_PFHxA		90	25-150
13C5_PFPeA		93	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MSD

Sample ID: ZB15009-013MD
Batch: 97765
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/05/2024 1607

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		82	25-150
13C7_PFUdA		85	25-150
13C8_PFOA		91	25-150
13C8_PFOS		88	25-150
13C8_PFOSA		87	10-150
13C9_PFNA		97	25-150
d5-EtFOSAA		85	25-150
d3-MeFOSAA		83	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Chain of Custody
and
Miscellaneous Documents

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

Pace Analytical® Chain of Custody Record

Plant 6

Pace Analytical Services, LLC.
106 Vantage Point Drive
West Columbia, South Carolina 29172
Telephone No. (803) 791-9700 Fax No. (803) 791-9111
www.pacelabs.com

Number

Client: Arcadis	Report to Contact: Tiffany Linder, Kaillyn Hunt	Telephone No. / E-mail: (248)809-4013/ kaillyn.hunt@arcadis.com	Quote No.
Address: 28550 Cabot Drive, Suite 500	Sampler's Signature: x Austin Westhuis	Analysis (Attach list if more space is needed)	Page 1 of 2
City: Novi / State: MI / Zip Code: 48377	Printed Name: Austin Westhuis		
Project Name: RACER Lansing GWS			ZB15009 KES2
Project Number: 30214036.37A	P.O. No.: LS3460013889		

Sample ID / Description (Combines for each sample may be combined on one line)	Collection Date(s)	Collection Time (military)	G=Grab C=Composite	Matrix: Aqueous	Solid	Non-Aqueous	No of Containers by Preservative Type: Unpres.	H2SO4	HNO3	HCl	NaOH	SDS Kit	Field Filtered	PFAS (Method 537M, EGLE 28 compounds)	Remarks / Cooler I.D.
mw-22-143_021224	2/12/24	1500	G	X			2							2	
mw-22-145_021224	2/12/24	1620	G	X			2							2	
DUP-04_021224	2/12/24	—	G	X			2							2	
EB-01_021224	2/12/24	1635	G	X			2							2	
mw-22-149_021424	2/14/24	1040	G	X			2							2	
mw-22-150_021424	2/14/24	1145	G	X			2							2	
mw-22-151_021424	2/14/24	1300	G	X			2							2	
mw-22-152_021424	2/14/24	1350	G	X			2							2	
DUP-05_021424	2/14/24	—	G	X			2							2	

Turn Around Time Required (Prior lab approval required for expedited TAT): ☒ Standard ☐ Rush (Please Specify)

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab

Possible Hazard Identification (List any known hazards in the remarks): ☒ Non-Hazardous ☐ Flammable ☐ Skin Irritant ☐ SDS provided ☐ Unknown

QC Requirements:

	Date	Time		Date	Time
1. Relinquished by: Austin Westhuis / Arcadis	2/14/24	1730	1. Received by: FedEx	2/14/24	1700
2. Relinquished by	Date	Time	2. Received by	Date	Time
3. Relinquished by	Date	Time	3. Received by	Date	Time
4. Relinquished by: FedEx	Date 02/19/24	Time 1010	4. Laboratory Received by: Brooke Speers	Date 02/19/24	Time 1010

Note: All samples are retained for four weeks from receipt unless other arrangements are made

LAB USE ONLY — Received on Ice (Check): ☑ Y ☐ N ☐ Ice Pack

Receipt Temp.: 2.5 °C

Temp. Blank: ☐ Y / ☑ N

PACE ANALYTICAL SERVICES, LLC

Pace Analytical® **Chain of Custody Record**

Pace Analytical Services, LLC.
106 Vantage Point Drive
West Columbia, South Carolina 29172
Telephone No. (803) 791-9700 Fax No. (803) 791-9111
www.pacelabs.com

Number

Client	Report to Contact	Telephone No. / E-mail	Quote No.
Arcadis	Tiffany Linder, Kaitlyn Hunt	(248)839-4013/ kaitlyn.hunt@arcadis.com	

Address	Sampler's Signature	Analysis (Attach list if more space is needed)	Page
28550 Cabot Drive, Suite 500	X		2 of 2

City	State	Zip Code	Printed Name	Lot # Bar Code
Novi	MI	48377	Brian J Cosgrove	ZB15009

Project Name	Project Number	P.O. No.
RACER Lansing GWS	30214036.37A	US3460013889

Sample ID / Description (Containers for each sample may be combined on one line)	Collection Date(s)	Collection Time (military)	G=Grab C=Composite	Matrix: Aqueous	Solid	Non-Aqueous	No of Containers by Preservative Type: Unpres.	H2SO4	HNO3	HCl	NaOH	5035 Kit	Field Filtered	PFAS (Method 537M, EGLE 28 compounds)	Remarks / Cooler I.D.
EB-02_021424	2/14/24	925	G	X			2							2	
MW-22-158_021424	2/14/24	1015	G	X			2							2	
MW-22-144_021424	2/14/24	1135	G	X			2							2	
MW-22-160_021424	2/14/24	1245	G	X			6							6	MS/MSD
MW-22-146_021424	2/14/24	1405	G	X			2							2	
MW-22-148_021424	2/14/24	1515	G	X			2							2	
MW-22-147_021424	2/14/24	1600	G	X			2							2	

Turn Around Time Required (Prior lab approval required for expedited TAT)	Sample Disposal	Possible Hazard Identification (List any known hazards in the remarks)	QC Requirements
☒ Standard ☐ Rush (Please Specify)	☐ Return to Client ☒ Disposal by Lab	☒ Non-Hazardous ☐ Flammable ☐ Skin Irritant ☐ SDS provided ☐ Unknown	

	Date	Time		Date	Time
1. Relinquished by: Austin Westhuis/Arcadis	2/14/24	1730	1. Received by: FedEx	2/14/24	1700
2. Relinquished by			2. Received by		
3. Relinquished by			3. Received by		
4. Relinquished by: FedEx	02/15/24	1010	4. Laboratory Received by: [illegible]	02/15/24	1010

Note: All samples are retained for four weeks from receipt unless other arrangements are made

LAB USE ONLY
Received on Ice (Check) ☒ Y ☐ N ☐ Ice Pack
Receipt Temp. 2.5 °C
Temp. Blank ☐ Y ☒ N

PACE ANALYTICAL SERVICES, LLC

DC#_Title: ENV-FRM-WCOL-0286 v02_Samples Receipt Checklist (SRC)
Effective Date: 8/2/2022

Sample Receipt Checklist (SRC)

Client: Arcadis Cooler Inspected by/date: [illegible] / 02/19/24 Lot #: 2B15009

Means of receipt: ☐ Pace ☐ Client ☐ UPS ☑ FedEx ☐ Other:			
☑ Yes	☐ No		1. Were custody seals present on the cooler?
☑ Yes	☐ No	☐ NA	2. If custody seals were present, were they intact and unbroken?

pH Strip ID: NA Chlorine Strip ID: NA Tested by: NA

Original temperature upon receipt / Derived (Corrected) temperature upon receipt %Solid Snap-Cup ID: NA

2.5/2.5 °C NA / NA °C NA / NA °C NA NA °C

Method: ☐ Temperature Blank ☑ Against Bottles IR Gun ID: 8 IR Gun Correction Factor: 0 °C

Method of coolant: ☑ Wet Ice ☐ Ice Packs ☐ Dry Ice ☐ None

☑ Yes	☐ No	☐ NA	3. Were all coolers received at or below 6.0°C? If no, was Project Manager notified? PM was Notified by: phone / email / face-to-face (circle one).
☑ Yes	☐ No	☐ NA	4. Is the commercial courier's packing slip attached to this form?
☑ Yes	☐ No		5. Were proper custody procedures (relinquished/received) followed?
☑ Yes	☐ No		6. Were sample IDs listed on the COC and all sample containers?
☑ Yes	☐ No		7. Was collection date & time listed on the COC and all sample containers?
☑ Yes	☐ No		8. Did all container label information (ID, date, time) agree with the COC?
☑ Yes	☐ No		9. Were tests to be performed listed on the COC?
☑ Yes	☐ No		10. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)?
☑ Yes	☐ No		11. Was adequate sample volume available?
☑ Yes	☐ No		12. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
☑ Yes	☐ No		13. Were all samples containers accounted for? (No missing/excess)
☐ Yes	☐ No	☑ NA	14. Were VOA, 8015C and RSK-175 samples free of bubbles >"pea-size" (¼"or 6mm in diameter) in any of the VOA vials?
☐ Yes	☐ No	☑ NA	15. Were all DRO/metals/nutrient samples received at a pH of < 2?
☐ Yes	☐ No	☑ NA	16. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
☐ Yes	☐ No	☑ NA	17. Were all applicable NH_3/TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?
☑ Yes	☐ No	☐ NA	18. Was the quote number listed on the container label? If yes, Quote # 25329

Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)

Sample(s) NA were received incorrectly preserved and were adjusted accordingly in sample receiving with NA mL of circle one: H_2SO_4, HNO_3, HCl, NaOH using SR # NA. ☐
Time of preservation NA. If more than one preservative is needed, please note in the comments below.

Sample(s) NA were received with bubbles >6 mm in diameter.

Samples(s) NA were received with TRC > 0.5 mg/L (If #19 is *no*) and were adjusted accordingly in sample receiving with sodium thiosulfate ($Na_2S_2O_3$) with Unique ID: NA.

Comments:

Qualtrax ID: 56360 Pace® Analytical Services, LLC Page 1 of 1

ANALYTICAL REPORT

PREPARED FOR

Attn: Tiffany Linder
Arcadis U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Generated 4/24/2024 11:31:38 AM

JOB DESCRIPTION

Racer Lansing

JOB NUMBER

240-202613-1

Eurofins Cleveland
180 S. Van Buren Avenue
Barberton OH 44203

See page two for job notes and contact information.

my EOL

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

Authorization



Generated
4/24/2024 11:31:38 AM

Authorized for release by
Michael DelMonico, Project Manager I
Michael.DelMonico@et.eurofinsus.com
(330)497-9396

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Definitions/Glossary

Client: Arcadis U.S., Inc.
Job ID: 240-202613-1
Project/Site: Racer Lansing

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job Narrative
240-202613-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 4/10/2024 9:40 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.7°C.

GC/MS Semi VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Method Summary

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-202613-1

Method	Method Description	Protocol	Laboratory
522	1,4 Dioxane (GC/MS SIM)	EPA	EET BUR
522	Solid-Phase Extraction (SPE)	EPA	EET BUR

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

EET BUR = Eurofins Burlington, 530 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Sample Summary

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-202613-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-202613-1	MW-19-118S_040924	Water	04/09/24 11:20	04/10/24 09:40
240-202613-2	MW-17-87_040924	Water	04/09/24 12:30	04/10/24 09:40
240-202613-3	DUP-02_040924	Water	04/09/24 00:00	04/10/24 09:40

Detection Summary

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-202613-1

Client Sample ID: MW-19-118S_040924 — Lab Sample ID: 240-202613-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	0.73		0.20	0.092	ug/L	1		522	Total/NA

Client Sample ID: MW-17-87_040924 — Lab Sample ID: 240-202613-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	3.4		0.20	0.092	ug/L	1		522	Total/NA

Client Sample ID: DUP-02_040924 — Lab Sample ID: 240-202613-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	3.4		0.20	0.092	ug/L	1		522	Total/NA

This Detection Summary does not include radiochemical test results.

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-202613-1

Client Sample ID: MW-19-118S_040924
Date Collected: 04/09/24 11:20
Date Received: 04/10/24 09:40

Lab Sample ID: 240-202613-1
Matrix: Water

Method: EPA 522 - 1,4 Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.73		0.20	0.092	ug/L		04/23/24 10:15	04/23/24 20:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*104*		*46 - 130*	*04/23/24 10:15*	*04/23/24 20:48*	*1*

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-202613-1

Client Sample ID: MW-17-87_040924
Date Collected: 04/09/24 12:30
Date Received: 04/10/24 09:40

Lab Sample ID: 240-202613-2
Matrix: Water

Method: EPA 522 - 1,4 Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	3.4		0.20	0.092	ug/L		04/23/24 10:15	04/23/24 21:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*99*		*46 - 130*	*04/23/24 10:15*	*04/23/24 21:02*	*1*

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-202613-1

Client Sample ID: DUP-02_040924
Date Collected: 04/09/24 00:00
Date Received: 04/10/24 09:40

Lab Sample ID: 240-202613-3
Matrix: Water

Method: EPA 522 - 1,4 Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	3.4		0.20	0.092	ug/L		04/23/24 10:15	04/23/24 21:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*96*		*46 - 130*	*04/23/24 10:15*	*04/23/24 21:15*	*1*

Surrogate Summary

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-202613-1

Method: 522 - 1,4 Dioxane (GC/MS SIM)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)							
		DXE							
Lab Sample ID	Client Sample ID	(46-130)							
240-202613-1	MW-19-118S_040924	104							
240-202613-2	MW-17-87_040924	99							
240-202613-3	DUP-02_040924	96							
LCS 200-203346/2-A	Lab Control Sample	99							
MB 200-203346/1-A	Method Blank	101							

Surrogate Legend

DXE = 1,4-Dioxane-d8 (Surr)

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-202613-1

Method: 522 - 1,4 Dioxane (GC/MS SIM)

Lab Sample ID: MB 200-203346/1-A
Matrix: Water
Analysis Batch: 203368

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 203346

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.20	U	0.20	0.092	ug/L		04/23/24 10:15	04/23/24 16:59	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*101*		*46 - 130*	*04/23/24 10:15*	*04/23/24 16:59*	*1*

Lab Sample ID: LCS 200-203346/2-A
Matrix: Water
Analysis Batch: 203368

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 203346

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
1,4-Dioxane			8.00	8.43		ug/L		105	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,4-Dioxane-d8 (Surr)	*99*		*46 - 130*

QC Association Summary

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-202613-1

GC/MS Semi VOA

Prep Batch: 203346

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-202613-1	MW-19-118S_040924	Total/NA	Water	522	
240-202613-2	MW-17-87_040924	Total/NA	Water	522	
240-202613-3	DUP-02_040924	Total/NA	Water	522	
MB 200-203346/1-A	Method Blank	Total/NA	Water	522	
LCS 200-203346/2-A	Lab Control Sample	Total/NA	Water	522	

Analysis Batch: 203368

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-202613-1	MW-19-118S_040924	Total/NA	Water	522	203346
240-202613-2	MW-17-87_040924	Total/NA	Water	522	203346
240-202613-3	DUP-02_040924	Total/NA	Water	522	203346
MB 200-203346/1-A	Method Blank	Total/NA	Water	522	203346
LCS 200-203346/2-A	Lab Control Sample	Total/NA	Water	522	203346

Lab Chronicle

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-202613-1

Client Sample ID: MW-19-118S_040924

Lab Sample ID: 240-202613-1

Date Collected: 04/09/24 11:20

Matrix: Water

Date Received: 04/10/24 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	522			203346	DO	EET BUR	04/23/24 10:15
Total/NA	Analysis	522		1	203368	K1P	EET BUR	04/23/24 20:48

Client Sample ID: MW-17-87_040924

Lab Sample ID: 240-202613-2

Date Collected: 04/09/24 12:30

Matrix: Water

Date Received: 04/10/24 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	522			203346	DO	EET BUR	04/23/24 10:15
Total/NA	Analysis	522		1	203368	K1P	EET BUR	04/23/24 21:02

Client Sample ID: DUP-02_040924

Lab Sample ID: 240-202613-3

Date Collected: 04/09/24 00:00

Matrix: Water

Date Received: 04/10/24 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	522			203346	DO	EET BUR	04/23/24 10:15
Total/NA	Analysis	522		1	203368	K1P	EET BUR	04/23/24 21:15

Laboratory References:

EET BUR = Eurofins Burlington, 530 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Accreditation/Certification Summary

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-202613-1

Laboratory: Eurofins Burlington

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
ANAB	Dept. of Defense ELAP	L2336	02-25-26
Connecticut	State	PH-0751	09-30-25
DE Haz. Subst. Cleanup Act (HSCA)	State	N/A	05-18-24
Florida	NELAP	E87467	06-30-24
Minnesota	NELAP	050-999-436	12-31-24
New Hampshire	NELAP	2006	12-18-24
New Jersey	NELAP	VT972	06-30-24
New York	NELAP	10391	03-31-25
Pennsylvania	NELAP	68-00489	04-30-25
Rhode Island	State	LAO00298	12-31-24
US Fish & Wildlife	US Federal Programs	058448	07-31-24
USDA	US Federal Programs	P330-17-00272	12-19-26
Vermont	State	VT4000	02-10-25
Virginia	NELAP	460209	12-14-24
Wisconsin	State	399140830	08-31-24

Eurofins Canton
180 S. Van Buren Ave
Barberton, OH 44203-3543
phone 330.497.9396 fax 330.497.0772

Plant 2

Chain of Custody Record

0.2/1.7

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Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Eurofins Environment Testing America

Client Contact	Project Manager:	Site Contact: Kaitlyn Hunt	Date:	COC No:
Arcadis	Email: tiffany.linder@arcadis.com	Lab Contact: Michael DelMonico	Carrier:	1 of 1 COCs
28550 Cabot Drive, Suite 500	Tel/Fax: (810) 225-1928			TALS Project #:
Novi, MI 48377	Analysis Turnaround Time			Sampler: Austin Westhuis
(248) 994-2240 Phone	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
tiffany.linder@arcadis.com, kaitlyn.hunt@arcadis.com	TAT if different from Below Standard			Walk-in Client:
Project Name: RACER Lansing[redacted]	☐ 2 weeks			Lab Sampling:
Site: Plant 2	☐ 1 week			
PO# 30214036.0047A	☐ 2 days			Job / SDG No.:
	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	522 - 1,4-Dioxane	Sample Specific Notes:
MW-19-1185_040924	4/9/24	1120	G	GW	2	N	N	2	
MW-17-87_040924	4/9/24	1230	G	GW	2	N	N	2	
DUP-02_040924	4/9/24	—	G	GW	2	N	N	2	

240-202613 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☑ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:	Cooler Temp. (°C): Obs'd: _____ Corr'd: _____	Therm ID No.: _____

Relinquished by: Austin Westhuis	Company: Arcadis	Date/Time: 4/9/24	Received by: FedEx	Company: FedEx	Date/Time: 4/9/24	
Relinquished by:	Company:	Date/Time:	Received by:	Company: EETNC	Date/Time: 4-10-24 0940	
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:	

Eurofins – Cleveland Sample Receipt Form/Narrative Login # : 202613
Barberton Facility

Client Arcadis Site Name Racer Lansing Cooler unpacked by

Cooler Received on 4-10 24 Opened on 4-10-24

FedEx. 1st Grd (Exp) UPS FAS Waypoint Client Drop Off Eurofins Courier Other

Receipt After-hours Drop-off Date/Time Storage Location

Eurofins Cooler # EC Foam Box Client Cooler Box Other

Packing material used (Bubble Wrap) Foam Plastic Bag None Other

COOLANT (Wet Ice) Blue Ice Dry Ice Water None

1 Cooler temperature upon receipt ☐ See Multiple Cooler Form

IR GUN # 19 (CF +1.5 °C) Observed Cooler Temp 0.2 °C Corrected Cooler Temp. 1.7 °C

2	Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1	(Yes) No
	-Were the seals on the outside of the cooler(s) signed & dated?	(Yes) No NA
	-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes (No)
	-Were tamper/custody seals intact and uncompromised?	(Yes) No NA
3	Shippers' packing slip attached to the cooler(s)?	(Yes) No
4	Did custody papers accompany the sample(s)?	(Yes) No
5	Were the custody papers relinquished & signed in the appropriate place?	(Yes) No
6	Was/were the person(s) who collected the samples clearly identified on the COC?	(Yes) No
7	Did all bottles arrive in good condition (Unbroken)?	(Yes) No
8	Could all bottle labels (ID/Date/Time) be reconciled with the COC?	(Yes) No
9	For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)?	(Y) N
10	Were correct bottle(s) used for the test(s) indicated?	(Yes) No
11	Sufficient quantity received to perform indicated analyses?	(Yes) No
12	Are these work share samples and all listed on the COC?	Yes (No)
	If yes, Questions 13-17 have been checked at the originating laboratory	
13	Were all preserved sample(s) at the correct pH upon receipt?	Yes No (NA) pH Strip Lot# HC329089
14.	Were VOAs on the COC?	Yes (No)
15	Were air bubbles >6 mm in any VOA vials? ● ← Larger than this	Yes No (NA)
16	Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #	Yes (No)
17	Was a LL Hg or Me Hg trip blank present?	Yes (No)

Tests that are not checked for pH by Receiving:

VOAs
Oil and Grease
TOC

Contacted PM Date by via Verbal Voice Mail Other

Concerning

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES ☐ additional next page | Samples processed by:

19 SAMPLE CONDITION

Sample(s) were received after the recommended holding time had expired

Sample(s) were received in a broken container

Sample(s) were received with bubble >6 mm in diameter (Notify PM)

20 SAMPLE PRESERVATION

Sample(s) were further preserved in the laboratory

Time preserved Preservative(s) added/Lot number(s)

VOA Sample Preservation Date/Time VOAs Frozen

4/10/2024

Login Container Summary Report

240-202613

4/24/2024

Temperature readings _____

Client Sample ID	Lab ID	Container Type	Container pH	Container Temp	Preservation Added	Preservation Lot Number
MW-19-118S 040924	240-202613-A-1	Amber Glass 250mL - hydrochloric acid				
MW-19-118S_040924	240-202613-B 1	Amber Glass 250mL - hydrochloric acid				
MW-17-87_040924	240-202613-A-2	Amber Glass 250mL - hydrochloric acid				
MW-17-87_040924	240-202613-B-2	Amber Glass 250mL - hydrochloric acid				
DUP-02_040924	240-202613-A-3	Amber Glass 250mL - hydrochloric acid				
DUP-02_040924	240-202613-B-3	Amber Glass 250mL - hydrochloric acid				

Eurofins Cleveland
180 S. Van Buren Avenue
Barberton, OH 44203
Phone. 330-497-9396 Fax: 330-497-0772

Chain of Custody Record



ofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM.: DelMonico, Michael		2958.1
Client Contact: Shipping/Receiving	Phone	E-Mail: Michael.DelMonico@et.eurofinsus.com	State of Origin: Michigan	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note).		Job #: 240-202613-1
Address: 530 Community Drive, Suite 11,	Due Date Requested: 4/25/2024			
City: South Burlington	TAT Requested (days):			
State, Zip: VT, 05403				
Phone: 802-660-1990(Tel) 802-660-1919(Fax)	PO #:			
Email	WO #:			
Project Name: Racer Lansing B0064480.2016.00603	Project #: 24017406			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL
B - NaOH
C - Zn Acetate
D - Nitric Acid
E - NaHSO4
F - MeOH
G - Amchlor
H - Ascorbic Acid
I - Ice
J - DI Water
K - EDTA
L - EDA
M - Hexane
N - None
O - AsNaO2
P - Na2O4S
Q - Na2SO3
R - Na2S2O3
S - H2SO4
T - TSP Dodecahydrate
U - Acetone
V - MCAA
W - pH 4-5
Y - Trizma
Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	522/522_CWA_Prep	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
MW-19-118S_040924 (240-202613-1)	4/9/24	11:20 Eastern		Water			X	2	
MW-17-87_040924 (240-202613-2)	4/9/24	12:30 Eastern		Water			X	2	
DUP-02_040924 (240-202613-3)	4/9/24	Eastern		Water			X	2	

Note Since laboratory accreditations are subject to change, Eurofins Environment Testing North Central, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing North Central, LLC laboratory or other instructions will be provided Any changes to accreditation status should be brought to Eurofins Environment Testing North Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing North Central, LLC

Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:		Date:	Time:	Method of Shipment:		
Relinquished by:	Date/Time: 4/10/24 1550	Company: EET/NC	Received by:	Date/Time: 4/11/24 1035	Company: ETA BUN	
Relinquished by:	Date/Time.	Company	Received by:	Date/Time.	Company	
Relinquished by:	Date/Time.	Company	Received by:	Date/Time.	Company	
Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks.			

Ver: 06/08/2021

ORIGIN ID:CAKA (330) 312-0176
LANCE HERSHMAN
EUROFINS TESTAMERICA BARBERTON
180 S VAN BUREN

BARBERTON, OH 44203
UNITED STATES US

SHIP DATE: 10APR24
ACTWGT: 33.00 LB MAN
CAD: 0792304/CAFE3603

BILL SENDER

TO SHIPPING/RECEIVING
TESTAMERICA LABORATORIES, INC.
530 COMMUNITY DRIVE
SUITE 11
SOUTH BURLINGTON VT 05403

(802) 660-1990
PO: YES

REF: 8240-119578

FedEx Express

TRK# 0201 7180 5079 9548

THU - 11 APR 10:30A
PRIORITY OVERNIGHT

NX BTVA

05403
VT-US BTV

Eurofins Cleveland
180 S. Van Buren Avenue
Barberton, OH 44203
Phone: 330-497-9396 Fax: 330-497-0772

Chain of Custody Record



ofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: DelMonico, Michael	2958.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Michael.DelMonico@et.eurofinsus.com	State of Origin: Michigan
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note).	Page: Page 1 of 1
Address: 530 Community Drive, Suite 11,	Due Date Requested: 4/25/2024		Job #: 240-202613-1
City: South Burlington	TAT Requested (days):		
State, Zip: VT, 05403			
Phone: 802-660-1990(Tel) 802-660-1919(Fax)	PO #:		
Email	WO #:		
Project Name: Racer Lansing B0064480.2016.00603	Project #: 24017406		
Site	SSOW#:		

Analysis Requested

Preservation Codes:

A - HCL
B - NaOH
C - Zn Acetate
D - Nitric Acid
E - NaHSO4
F - MeOH
G - Amchlor
H - Ascorbic Acid
I - Ice
J - DI Water
K - EDTA
L - EDA
M - Hexane
N - None
O - AsNaO2
P - Na2O4S
Q - Na2SO3
R - Na2S2O3
S - H2SO4
T - TSP Dodecahydrate
U - Acetone
V - MCAA
W - pH 4-5
Y - Trizma
Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	522/522_CWA_Prep	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
MW-19-118S_040924 (240-202613-1)	4/9/24	11:20 Eastern		Water			X	2	
MW-17-87_040924 (240-202613-2)	4/9/24	12:30 Eastern		Water			X	2	
DUP-02_040924 (240-202613-3)	4/9/24	Eastern		Water			X	2	

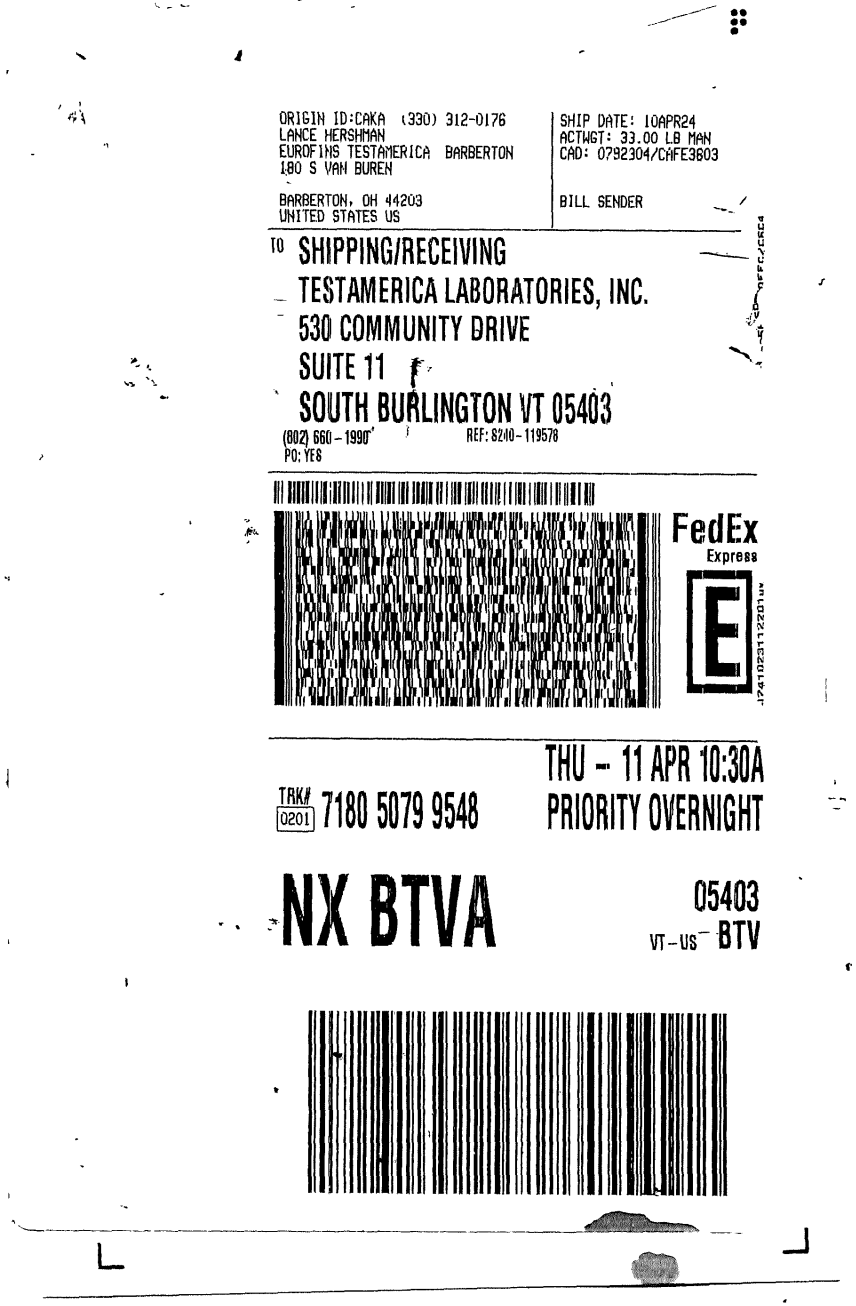
Note Since laboratory accreditations are subject to change, Eurofins Environment Testing North Central, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing North Central, LLC laboratory or other instructions will be provided Any changes to accreditation status should be brought to Eurofins Environment Testing North Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing North Central, LLC

Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:		Date:	Time:	Method of Shipment:		
Relinquished by:	Date/Time: 4/10/24 1550	Company: BGTNC	Received by:	Date/Time: 4/11/24 1035	Company: ETA BUN	
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:	
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:	

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks.

Ver: 06/08/2021



ORIGIN ID:CAKA (330) 312-0176
LANCE HERSHMAN
EUROFINS TESTAMERICA BARBERTON
180 S VAN BUREN

BARBERTON, OH 44203
UNITED STATES US

SHIP DATE: 10APR24
ACTWGT: 33.00 LB MAN
CAD: 0792304/CAFE3803

BILL SENDER

TO SHIPPING/RECEIVING
TESTAMERICA LABORATORIES, INC.
530 COMMUNITY DRIVE
SUITE 11
SOUTH BURLINGTON VT 05403

(802) 660-1990
REF: 8240-119578
PO: YES

FedEx Express

THU - 11 APR 10:30A
PRIORITY OVERNIGHT

TRK# 0201 7180 5079 9548

NX BTVA

05403
VT-US BTV

Login Sample Receipt Checklist

Client: Arcadis U.S., Inc.

Job Number: 240-202613-1

Login Number: 202613
List Number: 2
Creator: Muniz, Luca

List Source: Eurofins Burlington
List Creation: 04/12/24 09:09 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.6ºC
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	N/A	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Analytical Laboratory Report

Report ID: S60829.01(01)+QC01
Generated on 04/22/2024

Report to

Attention: Kaitlyn Hunt
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 C:947-777-5215 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Addtional Contacts: Marina Samp, Tiffany Linder

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S60829.01-S60829.17
Project: 30214036.0047A / RACER Lansing GWS
Collected Date(s): 04/08/2024 - 04/10/2024
Submitted Date/Time: 04/10/2024 15:50
Sampled by: Austin Westhuis
P.O. #: 30214036.0047A

Table of Contents

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QC Report (Pages 30-86)

Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Starred (*) analytes are not NY NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.
Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.
All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.
For a specific list of accredited analytes, please feel free to contact the laboratory or visit https://www.meritlabs.com/certifications.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
o	Associated EIS outside of control limits
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
q	Qualifier ion ratio outside of control limits
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
N/A	Not Applicable
SW5030C/8260C	SW 846 Method 8260C Revision 3 August 2006 / 5030C Revision 3 May 2003
SW8260B - SIM	SW 846 Method 8260B Revision 2 December 1996 SIMs

Sample Summary (17 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S60829.01	MW-14-58R_040824	Groundwater	04/08/24 13:35
S60829.02	MW-22-153_040824	Groundwater	04/08/24 14:35
S60829.03	MW-22-155_040824	Groundwater	04/08/24 15:30
S60829.04	MW-22-156_040824	Groundwater	04/08/24 16:35
S60829.05	MW-22-157_040824	Groundwater	04/08/24 20:00
S60829.06	MW-23-161_040824	Groundwater	04/08/24 17:35
S60829.07	MW-23-162_040824	Groundwater	04/08/24 18:20
S60829.08	MW-23-163_040824	Groundwater	04/08/24 19:10
S60829.09	DUP-01_040824	Groundwater	04/08/24 00:01
S60829.10	MW-14-56_040924	Groundwater	04/09/24 13:50
S60829.11	MW-14-56_040924 MS	Groundwater	04/09/24 13:50
S60829.12	MW-14-56_040924 MSD	Groundwater	04/09/24 13:50
S60829.13	MW-16-83_041024	Groundwater	04/10/24 10:10
S60829.14	MW-15-73_041024	Groundwater	04/10/24 11:35
S60829.15	MW-20-126_041024	Groundwater	04/10/24 13:50
S60829.16	MW-16-80_041024	Groundwater	04/10/24 14:45
S60829.17	Trip Blank_041024	Water	04/10/24 00:01

Lab Sample ID: S60829.01
Sample Tag: MW-14-58R_040824
Collected Date/Time: 04/08/2024 13:35
Matrix: Groundwater
COC Reference: 170528

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	04/15/24 12:22	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 04/19/24 19:17, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	280	10		ug/L	10	123-91-1	Y

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/20/24 17:18, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	

Y-Elevated reporting limit due to high target concentration

Lab Sample ID: S60829.01 (continued)
Sample Tag: MW-14-58R_040824

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/20/24 17:18, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Lab Sample ID: S60829.02
Sample Tag: MW-22-153_040824
Collected Date/Time: 04/08/2024 14:35
Matrix: Groundwater
COC Reference: 170528

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	04/15/24 12:22	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 04/14/24 15:07, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	79	1		ug/L	1	123-91-1	

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/20/24 17:41, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	2	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	119	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	

Lab Sample ID: S60829.02 (continued)
Sample Tag: MW-22-153_040824

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/20/24 17:41, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Lab Sample ID: S60829.03
Sample Tag: MW-22-155_040824
Collected Date/Time: 04/08/2024 15:30
Matrix: Groundwater
COC Reference: 170528

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	04/15/24 12:22	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 04/14/24 15:32, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	153	1		ug/L	1	123-91-1	

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/20/24 18:04, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	

Lab Sample ID: S60829.03 (continued)
Sample Tag: MW-22-155_040824

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/20/24 18:04, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Lab Sample ID: S60829.04
Sample Tag: MW-22-156_040824
Collected Date/Time: 04/08/2024 16:35
Matrix: Groundwater
COC Reference: 170528

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	04/15/24 12:22	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 04/14/24 15:57, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	116	1		ug/L	1	123-91-1	

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/20/24 21:13, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	100		ug/L	10	60-29-7	Y
Acetone	Not detected	500		ug/L	10	67-64-1	Y
Methyl iodide	Not detected	10		ug/L	10	74-88-4	Y
Carbon disulfide	Not detected	50		ug/L	10	75-15-0	Y
tert-Methyl butyl ether (MTBE)	Not detected	50		ug/L	10	1634-04-4	Y
Acrylonitrile	Not detected	20		ug/L	10	107-13-1	Y
2-Butanone (MEK)	Not detected	250		ug/L	10	78-93-3	Y
Dichlorodifluoromethane	Not detected	50		ug/L	10	75-71-8	Y
Chloromethane	Not detected	50		ug/L	10	74-87-3	Y
Vinyl chloride	Not detected	10		ug/L	10	75-01-4	Y
Bromomethane	Not detected	50		ug/L	10	74-83-9	Y
Chloroethane	Not detected	50		ug/L	10	75-00-3	Y
Trichlorofluoromethane	Not detected	10		ug/L	10	75-69-4	Y
1,1-Dichloroethene	20	10		ug/L	10	75-35-4	Y
Methylene chloride	Not detected	50		ug/L	10	75-09-2	Y
trans-1,2-Dichloroethene	Not detected	10		ug/L	10	156-60-5	Y
1,1-Dichloroethane	250	10		ug/L	10	75-34-3	Y
cis-1,2-Dichloroethene	Not detected	10		ug/L	10	156-59-2	Y
Tetrahydrofuran*	Not detected	900		ug/L	10	109-99-9	Y
Chloroform	Not detected	10		ug/L	10	67-66-3	Y
Bromochloromethane	Not detected	10		ug/L	10	74-97-5	Y
1,1,1-Trichloroethane	Not detected	10		ug/L	10	71-55-6	Y
4-Methyl-2-pentanone (MIBK)	Not detected	500		ug/L	10	108-10-1	Y
2-Hexanone	Not detected	500		ug/L	10	591-78-6	Y
Carbon tetrachloride	Not detected	10		ug/L	10	56-23-5	Y
Benzene	Not detected	10		ug/L	10	71-43-2	Y
1,2-Dichloroethane	Not detected	10		ug/L	10	107-06-2	Y
Trichloroethene	Not detected	10		ug/L	10	79-01-6	Y
1,2-Dichloropropane	Not detected	10		ug/L	10	78-87-5	Y
Bromodichloromethane	Not detected	10		ug/L	10	75-27-4	Y
Dibromomethane	Not detected	50		ug/L	10	74-95-3	Y
cis-1,3-Dichloropropene	Not detected	10		ug/L	10	10061-01-5	Y

Y-Elevated reporting limit due to high target concentration

Lab Sample ID: S60829.04 (continued)
Sample Tag: MW-22-156_040824

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/20/24 21:13, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Toluene	Not detected	10		ug/L	10	108-88-3	Y
trans-1,3-Dichloropropene	Not detected	10		ug/L	10	10061-02-6	Y
1,1,2-Trichloroethane	Not detected	10		ug/L	10	79-00-5	Y
Tetrachloroethene	Not detected	10		ug/L	10	127-18-4	Y
trans-1,4-Dichloro-2-butene	Not detected	10		ug/L	10	110-57-6	Y
Dibromochloromethane	Not detected	50		ug/L	10	124-48-1	Y
1,2-Dibromoethane	Not detected	10		ug/L	10	106-93-4	Y
Chlorobenzene	Not detected	10		ug/L	10	108-90-7	Y
1,1,1,2-Tetrachloroethane	Not detected	10		ug/L	10	630-20-6	Y
Ethylbenzene	Not detected	10		ug/L	10	100-41-4	Y
p,m-Xylene*	Not detected	20		ug/L	10		Y
o-Xylene	Not detected	10		ug/L	10	95-47-6	Y
Styrene	Not detected	10		ug/L	10	100-42-5	Y
Isopropylbenzene	Not detected	50		ug/L	10	98-82-8	Y
Bromoform	Not detected	10		ug/L	10	75-25-2	Y
1,1,2,2-Tetrachloroethane	Not detected	10		ug/L	10	79-34-5	Y
1,2,3-Trichloropropane	Not detected	10		ug/L	10	96-18-4	Y
n-Propylbenzene	Not detected	10		ug/L	10	103-65-1	Y
Bromobenzene	Not detected	10		ug/L	10	108-86-1	Y
1,3,5-Trimethylbenzene	Not detected	10		ug/L	10	108-67-8	Y
tert-Butylbenzene	Not detected	10		ug/L	10	98-06-6	Y
1,2,4-Trimethylbenzene	Not detected	10		ug/L	10	95-63-6	Y
sec-Butylbenzene	Not detected	10		ug/L	10	135-98-8	Y
p-Isopropyltoluene	Not detected	50		ug/L	10	99-87-6	Y
1,3-Dichlorobenzene	Not detected	10		ug/L	10	541-73-1	Y
1,4-Dichlorobenzene	Not detected	10		ug/L	10	106-46-7	Y
1,2-Dichlorobenzene	Not detected	10		ug/L	10	95-50-1	Y
1,2,3-Trimethylbenzene	Not detected	10		ug/L	10	526-73-8	Y
n-Butylbenzene	Not detected	10		ug/L	10	104-51-8	Y
Hexachloroethane	Not detected	50		ug/L	10	67-72-1	Y
1,2-Dibromo-3-chloropropane	Not detected	50		ug/L	10	96-12-8	Y
1,2,4-Trichlorobenzene	Not detected	50		ug/L	10	120-82-1	Y
1,2,3-Trichlorobenzene	Not detected	50		ug/L	10	87-61-6	Y
Naphthalene	Not detected	50		ug/L	10	91-20-3	Y
2-Methylnaphthalene	Not detected	50		ug/L	10	91-57-6	Y

Y-Elevated reporting limit due to high target concentration

Lab Sample ID: S60829.05
Sample Tag: MW-22-157_040824
Collected Date/Time: 04/08/2024 20:00
Matrix: Groundwater
COC Reference: 170528

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	04/15/24 12:22	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 04/14/24 16:22, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	61	1		ug/L	1	123-91-1	

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/20/24 18:28, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	

Lab Sample ID: S60829.05 (continued)
Sample Tag: MW-22-157_040824

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/20/24 18:28, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Lab Sample ID: S60829.06
Sample Tag: MW-23-161_040824
Collected Date/Time: 04/08/2024 17:35
Matrix: Groundwater
COC Reference: 170528

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	04/15/24 12:22	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 04/14/24 16:47, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	52	1		ug/L	1	123-91-1	

Lab Sample ID: S60829.07
Sample Tag: MW-23-162_040824
Collected Date/Time: 04/08/2024 18:20
Matrix: Groundwater
COC Reference: 170528

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	04/15/24 12:22	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 04/14/24 17:12, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	28	1		ug/L	1	123-91-1	

Lab Sample ID: S60829.08
Sample Tag: MW-23-163_040824
Collected Date/Time: 04/08/2024 19:10
Matrix: Groundwater
COC Reference: 170528

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	04/15/24 12:22	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 04/14/24 17:37, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	11	1		ug/L	1	123-91-1	

Lab Sample ID: S60829.09
Sample Tag: DUP-01_040824
Collected Date/Time: 04/08/2024 00:01
Matrix: Groundwater
COC Reference: 170528

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	04/15/24 12:22	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 04/19/24 19:43, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	270	10		ug/L	10	123-91-1	Y

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/20/24 18:52, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	

Y-Elevated reporting limit due to high target concentration

Lab Sample ID: S60829.09 (continued)
Sample Tag: DUP-01_040824

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/20/24 18:52, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Lab Sample ID: S60829.10
Sample Tag: MW-14-56_040924
Collected Date/Time: 04/09/2024 13:50
Matrix: Groundwater
COC Reference: 170528

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	04/15/24 12:22	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 04/14/24 18:27, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	18	1		ug/L	1	123-91-1	

Lab Sample ID: S60829.11
Sample Tag: MW-14-56_040924 MS
Collected Date/Time: 04/09/2024 13:50
Matrix: Groundwater
COC Reference: 170528

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	04/15/24 12:22	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 04/14/24 19:42, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	67	1		ug/L	1	123-91-1	1

1-Spiked at 50 ug/L

Lab Sample ID: S60829.12
Sample Tag: MW-14-56_040924 MSD
Collected Date/Time: 04/09/2024 13:50
Matrix: Groundwater
COC Reference: 170528

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	04/15/24 12:22	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 04/14/24 20:07, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	59	1		ug/L	1	123-91-1	1

1-Spiked at 50 ug/L

Analytical Laboratory Report

Lab Sample ID: S60829.13
Sample Tag: MW-16-83_041024
Collected Date/Time: 04/10/2024 10:10
Matrix: Groundwater
COC Reference: 170528

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	04/15/24 12:22	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 04/15/24 06:32, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	Not detected	1		ug/L	1	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S60829.14
Sample Tag: MW-15-73_041024
Collected Date/Time: 04/10/2024 11:35
Matrix: Groundwater
COC Reference: 170528

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	04/15/24 12:22	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 04/15/24 06:58, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	3	1		ug/L	1	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S60829.15
Sample Tag: MW-20-126_041024
Collected Date/Time: 04/10/2024 13:50
Matrix: Groundwater
COC Reference: 166916

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	04/15/24 12:22	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 04/15/24 07:23, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	7	1		ug/L	1	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S60829.16
Sample Tag: MW-16-80_041024
Collected Date/Time: 04/10/2024 14:45
Matrix: Groundwater
COC Reference: 166916

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	04/15/24 12:22	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 04/15/24 07:49, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	25	1		ug/L	1	123-91-1	

Lab Sample ID: S60829.17
Sample Tag: Trip Blank_041024
Collected Date/Time: 04/10/2024 00:01
Matrix: Water
COC Reference: 166916

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40mL Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	04/21/24 13:23	ACK	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/20/24 13:47, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	

Lab Sample ID: S60829.17 (continued)

Sample Tag: Trip Blank_041024

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/20/24 13:47, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Quality Control Report

Report ID: S60829.01(01)+QC01
Generated on 04/22/2024

Report to

Attention: Kaitlyn Hunt
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 C:947-777-5215 FAX:

Report Produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S60829.01-S60829.17
Project: 30214036.0047A / RACER Lansing GWS
Submitted Date/Time: 04/10/2024 15:50
Sampled by: Austin Westhuis
P.O. #: 30214036.0047A

QC Report Sections

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Analysis Summary (Pages 31-47)
Prep Batch Summary (Page 48)
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Surrogates per QC Sample (Pages 56-59)
Internal Standards per Lab Sample (Pages 60-74)
Internal Standards per QC Sample (Pages 75-78)
Batch QC Results (Pages 79-86)

Report Flag Descriptions

*: QC result is outside of indicated control limits
W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.

Barbara Ball
Quality Assurance Manager

QC Report - Analysis Summary

Lab Sample ID: S60829.01
Sample Tag: MW-14-58R_040824
Collected Date/Time: 04/08/2024 13:35
Matrix: Groundwater
COC Reference: 170528

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	04/19/24 19:17	240419A9	VS240419W1	Yes	BLK/LCS/LCSD/MS/MS
Volatile Organics - DEQ List	SW5030C/8260C	04/20/24 17:18	240419D3	VF240419W6	Yes	BLK/LCS/LCSD

QC Report - Analysis Summary

Lab Sample ID: S60829.02
Sample Tag: MW-22-153_040824
Collected Date/Time: 04/08/2024 14:35
Matrix: Groundwater
COC Reference: 170528

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	04/14/24 15:07	240414A9	VS240414W1	Yes	BLK/LCS/LCSD/MS/MS
Volatile Organics - DEQ List	SW5030C/8260C	04/20/24 17:41	240419D3	VF240419W6	Yes	BLK/LCS/LCSD

QC Report - Analysis Summary

Lab Sample ID: S60829.03
Sample Tag: MW-22-155_040824
Collected Date/Time: 04/08/2024 15:30
Matrix: Groundwater
COC Reference: 170528

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	04/14/24 15:32	240414A9	VS240414W1	Yes	BLK/LCS/LCSD/MS/MS
Volatile Organics - DEQ List	SW5030C/8260C	04/20/24 18:04	240419D3	VF240419W6	Yes	BLK/LCS/LCSD

Lab Sample ID: S60829.04

Sample Tag: MW-22-156_040824

Collected Date/Time: 04/08/2024 16:35

Matrix: Groundwater

COC Reference: 170528

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	04/14/24 15:57	240414A9	VS240414W1	Yes	BLK/LCS/LCSD/MS/MS
Volatile Organics - DEQ List	SW5030C/8260C	04/20/24 21:13	240419D3	VF240419W6	Yes	BLK/LCS/LCSD

Lab Sample ID: S60829.05

Sample Tag: MW-22-157_040824

Collected Date/Time: 04/08/2024 20:00

Matrix: Groundwater

COC Reference: 170528

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	04/14/24 16:22	240414A9	VS240414W1	Yes	BLK/LCS/LCSD/MS/MS
Volatile Organics - DEQ List	SW5030C/8260C	04/20/24 18:28	240419D3	VF240419W6	Yes	BLK/LCS/LCSD

Lab Sample ID: S60829.06

Sample Tag: MW-23-161_040824

Collected Date/Time: 04/08/2024 17:35

Matrix: Groundwater

COC Reference: 170528

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	04/14/24 16:47	240414A9	VS240414W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S60829.07
Sample Tag: MW-23-162_040824
Collected Date/Time: 04/08/2024 18:20
Matrix: Groundwater
COC Reference: 170528

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	04/14/24 17:12	240414A9	VS240414W1	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Analysis Summary

Lab Sample ID: S60829.08
Sample Tag: MW-23-163_040824
Collected Date/Time: 04/08/2024 19:10
Matrix: Groundwater
COC Reference: 170528

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	04/14/24 17:37	240414A9	VS240414W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S60829.09

Sample Tag: DUP-01_040824

Collected Date/Time: 04/08/2024 00:01

Matrix: Groundwater

COC Reference: 170528

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	04/19/24 19:43	240419A9	VS240419W1	Yes	BLK/LCS/LCSD/MS/MS
Volatile Organics - DEQ List	SW5030C/8260C	04/20/24 18:52	240419D3	VF240419W6	Yes	BLK/LCS/LCSD

QC Report - Analysis Summary

Lab Sample ID: S60829.10
Sample Tag: MW-14-56_040924
Collected Date/Time: 04/09/2024 13:50
Matrix: Groundwater
COC Reference: 170528

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	04/14/24 18:27	240414A9	VS240414W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S60829.11

Sample Tag: MW-14-56_040924 MS

Collected Date/Time: 04/09/2024 13:50

Matrix: Groundwater

COC Reference: 170528

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	04/14/24 19:42	240414A9	VS240414W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S60829.12

Sample Tag: MW-14-56_040924 MSD

Collected Date/Time: 04/09/2024 13:50

Matrix: Groundwater

COC Reference: 170528

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	04/14/24 20:07	240414A9	VS240414W1	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Analysis Summary

Lab Sample ID: S60829.13
Sample Tag: MW-16-83_041024
Collected Date/Time: 04/10/2024 10:10
Matrix: Groundwater
COC Reference: 170528

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	04/15/24 06:32	240414B9	VS240414W3	Yes	BLK/LCS/LCSD

QC Report - Analysis Summary

Lab Sample ID: S60829.14
Sample Tag: MW-15-73_041024
Collected Date/Time: 04/10/2024 11:35
Matrix: Groundwater
COC Reference: 170528

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	04/15/24 06:58	240414B9	VS240414W3	Yes	BLK/LCS/LCSD

Lab Sample ID: S60829.15

Sample Tag: MW-20-126_041024

Collected Date/Time: 04/10/2024 13:50

Matrix: Groundwater

COC Reference: 166916

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	04/15/24 07:23	240414B9	VS240414W3	Yes	BLK/LCS/LCSD

QC Report - Analysis Summary

Lab Sample ID: S60829.16
Sample Tag: MW-16-80_041024
Collected Date/Time: 04/10/2024 14:45
Matrix: Groundwater
COC Reference: 166916

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	04/15/24 07:49	240414B9	VS240414W3	Yes	BLK/LCS/LCSD

Lab Sample ID: S60829.17

Sample Tag: Trip Blank_041024

Collected Date/Time: 04/10/2024 00:01

Matrix: Water

COC Reference: 166916

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	04/20/24 13:47	240419D3	VF240419W6	Yes	BLK/LCS/LCSD

QC Report - Prep Batch Summary

Organics - Volatiles, Prep Batch ID: VF240419W6

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S60829.01	Volatile Organics - DEQ List	SW5030C/8260C	04/20/24 17:18	240419D3
S60829.02	Volatile Organics - DEQ List	SW5030C/8260C	04/20/24 17:41	240419D3
S60829.03	Volatile Organics - DEQ List	SW5030C/8260C	04/20/24 18:04	240419D3
S60829.04	Volatile Organics - DEQ List	SW5030C/8260C	04/20/24 21:13	240419D3
S60829.05	Volatile Organics - DEQ List	SW5030C/8260C	04/20/24 18:28	240419D3
S60829.09	Volatile Organics - DEQ List	SW5030C/8260C	04/20/24 18:52	240419D3
S60829.17	Volatile Organics - DEQ List	SW5030C/8260C	04/20/24 13:47	240419D3

Organics - Volatiles, Prep Batch ID: VS240414W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S60829.02	1,4-Dioxane	SW8260B - SIM	04/14/24 15:07	240414A9
S60829.03	1,4-Dioxane	SW8260B - SIM	04/14/24 15:32	240414A9
S60829.04	1,4-Dioxane	SW8260B - SIM	04/14/24 15:57	240414A9
S60829.05	1,4-Dioxane	SW8260B - SIM	04/14/24 16:22	240414A9
S60829.06	1,4-Dioxane	SW8260B - SIM	04/14/24 16:47	240414A9
S60829.07	1,4-Dioxane	SW8260B - SIM	04/14/24 17:12	240414A9
S60829.08	1,4-Dioxane	SW8260B - SIM	04/14/24 17:37	240414A9
S60829.10	1,4-Dioxane	SW8260B - SIM	04/14/24 18:27	240414A9
S60829.11	1,4-Dioxane	SW8260B - SIM	04/14/24 19:42	240414A9
S60829.12	1,4-Dioxane	SW8260B - SIM	04/14/24 20:07	240414A9

Organics - Volatiles, Prep Batch ID: VS240414W3

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S60829.13	1,4-Dioxane	SW8260B - SIM	04/15/24 06:32	240414B9
S60829.14	1,4-Dioxane	SW8260B - SIM	04/15/24 06:58	240414B9
S60829.15	1,4-Dioxane	SW8260B - SIM	04/15/24 07:23	240414B9
S60829.16	1,4-Dioxane	SW8260B - SIM	04/15/24 07:49	240414B9

Organics - Volatiles, Prep Batch ID: VS240419W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S60829.01	1,4-Dioxane	SW8260B - SIM	04/19/24 19:17	240419A9
S60829.09	1,4-Dioxane	SW8260B - SIM	04/19/24 19:43	240419A9

QC Report - Surrogates per Lab Sample

Lab Sample ID: S60829.01

Sample Tag: MW-14-58R_040824

Collected Date/Time: 04/08/2024 13:35

Matrix: Groundwater

COC Reference: 170528

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240419D3, Run Date: 04/20/2024 17:18, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**102.0**	80.0	124.0
1,2-Dichloroethane-D4		**98.2**	72.0	125.0
Toluene-D8		**103.1**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S60829.02

Sample Tag: MW-22-153_040824

Collected Date/Time: 04/08/2024 14:35

Matrix: Groundwater

COC Reference: 170528

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240419D3, Run Date: 04/20/2024 17:41, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**102.8**	80.0	124.0
1,2-Dichloroethane-D4		**96.1**	72.0	125.0
Toluene-D8		**102.3**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S60829.03

Sample Tag: MW-22-155_040824

Collected Date/Time: 04/08/2024 15:30

Matrix: Groundwater

COC Reference: 170528

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240419D3, Run Date: 04/20/2024 18:04, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**103.7**	80.0	124.0
1,2-Dichloroethane-D4		**102.8**	72.0	125.0
Toluene-D8		**103.0**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S60829.04

Sample Tag: MW-22-156_040824

Collected Date/Time: 04/08/2024 16:35

Matrix: Groundwater

COC Reference: 170528

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240419D3, Run Date: 04/20/2024 21:13, Matrix: WW, Dilution: 10

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**102.6**	80.0	124.0
1,2-Dichloroethane-D4		**99.0**	72.0	125.0
Toluene-D8		**102.4**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S60829.05

Sample Tag: MW-22-157_040824

Collected Date/Time: 04/08/2024 20:00

Matrix: Groundwater

COC Reference: 170528

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240419D3, Run Date: 04/20/2024 18:28, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**103.5**	80.0	124.0
1,2-Dichloroethane-D4		**102.7**	72.0	125.0
Toluene-D8		**102.7**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S60829.09

Sample Tag: DUP-01_040824

Collected Date/Time: 04/08/2024 00:01

Matrix: Groundwater

COC Reference: 170528

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240419D3, Run Date: 04/20/2024 18:52, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**102.5**	80.0	124.0
1,2-Dichloroethane-D4		**94.4**	72.0	125.0
Toluene-D8		**102.6**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S60829.17

Sample Tag: Trip Blank_041024

Collected Date/Time: 04/10/2024 00:01

Matrix: Water

COC Reference: 166916

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240419D3, Run Date: 04/20/2024 13:47, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**102.8**	80.0	124.0
1,2-Dichloroethane-D4		**98.9**	72.0	125.0
Toluene-D8		**102.3**	89.0	112.0

QC Report - Surrogates per QC Sample

Organics - Volatiles, Prep Batch ID: VF240419W6

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240419D3.BLKW19C

Run in Batch: 240419D3, Run Date: 04/20/2024 13:23, Prep Date: 04/19/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**102.6**	80.0	124.0
1,2-Dichloroethane-D4		**96.9**	72.0	125.0
Toluene-D8		**102.4**	89.0	112.0

Laboratory Control Sample (LCS)

Lab Sample ID: 240419D3.LCSW19C

Run in Batch: 240419D3, Run Date: 04/20/2024 11:49, Prep Date: 04/19/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**104.5**	80.0	124.0
1,2-Dichloroethane-D4		**101.3**	72.0	125.0
Toluene-D8		**103.5**	89.0	112.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240419D3.LCSDW19C, Parent Sample ID: 240419D3.LCSW19C

Run in Batch: 240419D3, Run Date: 04/20/2024 12:13, Prep Date: 04/19/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**104.9**	80.0	124.0
1,2-Dichloroethane-D4		**105.2**	72.0	125.0
Toluene-D8		**103.0**	89.0	112.0

QC Report - Surrogates per QC Sample

Organics - Volatiles, Prep Batch ID: VS240414W1

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 240414A9.BLKW14A

Run in Batch: 240414A9, Run Date: 04/14/2024 12:11, Prep Date: 04/14/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample (LCS)

Lab Sample ID: 240414A9.LCSW14A

Run in Batch: 240414A9, Run Date: 04/14/2024 10:31, Prep Date: 04/14/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240414A9.LCSDW14A, Parent Sample ID: 240414A9.LCSW14A

Run in Batch: 240414A9, Run Date: 04/14/2024 10:56, Prep Date: 04/14/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Matrix Spike (MS)

Lab Sample ID: 240414A9.6071812M, Parent Sample ID: S60718.08

Run in Batch: 240414A9, Run Date: 04/14/2024 20:33, Prep Date: 04/14/2024, Matrix: WW, Dilution: 20

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Matrix Spike (MS)

Lab Sample ID: 240414A9.6082911M, Parent Sample ID: S60829.10

Run in Batch: 240414A9, Run Date: 04/14/2024 19:42, Prep Date: 04/14/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Matrix Spike Duplicate (MSD)

Lab Sample ID: 240414A9.6071813N, Parent Sample ID: 240414A9.6071812M

Run in Batch: 240414A9, Run Date: 04/14/2024 20:58, Prep Date: 04/14/2024, Matrix: WW, Dilution: 20

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Matrix Spike Duplicate (MSD)

Lab Sample ID: 240414A9.6082912N, Parent Sample ID: 240414A9.6082911M

Run in Batch: 240414A9, Run Date: 04/14/2024 20:07, Prep Date: 04/14/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

QC Report - Surrogates per QC Sample

Organics - Volatiles, Prep Batch ID: VS240414W3

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240414B9.BLKW14B

Run in Batch: 240414B9, Run Date: 04/15/2024 00:18, Prep Date: 04/14/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL

No Surrogates

Laboratory Control Sample (LCS)

Lab Sample ID: 240414B9.LCSW14B

Run in Batch: 240414B9, Run Date: 04/14/2024 22:37, Prep Date: 04/14/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL

No Surrogates

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240414B9.LCSDW14B, Parent Sample ID: 240414B9.LCSW14B

Run in Batch: 240414B9, Run Date: 04/14/2024 23:02, Prep Date: 04/14/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL

No Surrogates

QC Report - Surrogates per QC Sample

Organics - Volatiles, Prep Batch ID: VS240419W1

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 240419A9.BLKW19A

Run in Batch: 240419A9, Run Date: 04/19/2024 11:46, Prep Date: 04/19/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL

No Surrogates

Laboratory Control Sample (LCS)

Lab Sample ID: 240419A9.LCSW19A

Run in Batch: 240419A9, Run Date: 04/19/2024 09:17, Prep Date: 04/19/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL

No Surrogates

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240419A9.LCSDW19A, Parent Sample ID: 240419A9.LCSW19A

Run in Batch: 240419A9, Run Date: 04/19/2024 09:42, Prep Date: 04/19/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL

No Surrogates

Matrix Spike (MS)

Lab Sample ID: 240419A9.6084807M, Parent Sample ID: S60848.03

Run in Batch: 240419A9, Run Date: 04/19/2024 10:07, Prep Date: 04/19/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL

No Surrogates

Matrix Spike Duplicate (MSD)

Lab Sample ID: 240419A9.6084808N, Parent Sample ID: 240419A9.6084807M

Run in Batch: 240419A9, Run Date: 04/19/2024 10:32, Prep Date: 04/19/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL

No Surrogates

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S60829.01

Sample Tag: MW-14-58R_040824

Collected Date/Time: 04/08/2024 13:35

Matrix: Groundwater

COC Reference: 170528

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 240419A9, Run Date: 04/19/2024 19:17, Matrix: WW, Dilution: 10

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**98.7**	50.0	200.0

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240419D3, Run Date: 04/20/2024 17:18, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**97.0**	50.0	200.0
1,4-Difluorobenzene		**96.5**	50.0	200.0
Chlorobenzene-D5		**97.5**	50.0	200.0
1,4-Dichlorobenzene-D4		**93.9**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S60829.02

Sample Tag: MW-22-153_040824

Collected Date/Time: 04/08/2024 14:35

Matrix: Groundwater

COC Reference: 170528

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 240414A9, Run Date: 04/14/2024 15:07, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**93.6**	50.0	200.0

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240419D3, Run Date: 04/20/2024 17:41, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**95.3**	50.0	200.0
1,4-Difluorobenzene		**94.3**	50.0	200.0
Chlorobenzene-D5		**94.3**	50.0	200.0
1,4-Dichlorobenzene-D4		**90.7**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S60829.03

Sample Tag: MW-22-155_040824

Collected Date/Time: 04/08/2024 15:30

Matrix: Groundwater

COC Reference: 170528

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 240414A9, Run Date: 04/14/2024 15:32, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**95.3**	50.0	200.0

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240419D3, Run Date: 04/20/2024 18:04, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**94.8**	50.0	200.0
1,4-Difluorobenzene		**95.2**	50.0	200.0
Chlorobenzene-D5		**97.1**	50.0	200.0
1,4-Dichlorobenzene-D4		**95.7**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S60829.04

Sample Tag: MW-22-156_040824

Collected Date/Time: 04/08/2024 16:35

Matrix: Groundwater

COC Reference: 170528

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 240414A9, Run Date: 04/14/2024 15:57, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**93.1**	50.0	200.0

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240419D3, Run Date: 04/20/2024 21:13, Matrix: WW, Dilution: 10

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**98.5**	50.0	200.0
1,4-Difluorobenzene		**97.9**	50.0	200.0
Chlorobenzene-D5		**98.7**	50.0	200.0
1,4-Dichlorobenzene-D4		**97.2**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S60829.05

Sample Tag: MW-22-157_040824

Collected Date/Time: 04/08/2024 20:00

Matrix: Groundwater

COC Reference: 170528

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 240414A9, Run Date: 04/14/2024 16:22, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**103.0**	50.0	200.0

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240419D3, Run Date: 04/20/2024 18:28, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**95.5**	50.0	200.0
1,4-Difluorobenzene		**95.3**	50.0	200.0
Chlorobenzene-D5		**97.2**	50.0	200.0
1,4-Dichlorobenzene-D4		**95.6**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S60829.06

Sample Tag: MW-23-161_040824

Collected Date/Time: 04/08/2024 17:35

Matrix: Groundwater

COC Reference: 170528

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 240414A9, Run Date: 04/14/2024 16:47, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**91.0**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S60829.07

Sample Tag: MW-23-162_040824

Collected Date/Time: 04/08/2024 18:20

Matrix: Groundwater

COC Reference: 170528

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 240414A9, Run Date: 04/14/2024 17:12, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**97.5**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S60829.08

Sample Tag: MW-23-163_040824

Collected Date/Time: 04/08/2024 19:10

Matrix: Groundwater

COC Reference: 170528

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 240414A9, Run Date: 04/14/2024 17:37, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**94.6**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S60829.09

Sample Tag: DUP-01_040824

Collected Date/Time: 04/08/2024 00:01

Matrix: Groundwater

COC Reference: 170528

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 240419A9, Run Date: 04/19/2024 19:43, Matrix: WW, Dilution: 10

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**111.5**	50.0	200.0

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240419D3, Run Date: 04/20/2024 18:52, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**93.4**	50.0	200.0
1,4-Difluorobenzene		**91.6**	50.0	200.0
Chlorobenzene-D5		**91.2**	50.0	200.0
1,4-Dichlorobenzene-D4		**88.5**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S60829.10

Sample Tag: MW-14-56_040924

Collected Date/Time: 04/09/2024 13:50

Matrix: Groundwater

COC Reference: 170528

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 240414A9, Run Date: 04/14/2024 18:27, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**96.4**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S60829.13

Sample Tag: MW-16-83_041024

Collected Date/Time: 04/10/2024 10:10

Matrix: Groundwater

COC Reference: 170528

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 240414B9, Run Date: 04/15/2024 06:32, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**85.5**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S60829.14

Sample Tag: MW-15-73_041024

Collected Date/Time: 04/10/2024 11:35

Matrix: Groundwater

COC Reference: 170528

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 240414B9, Run Date: 04/15/2024 06:58, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**86.1**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S60829.15

Sample Tag: MW-20-126_041024

Collected Date/Time: 04/10/2024 13:50

Matrix: Groundwater

COC Reference: 166916

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 240414B9, Run Date: 04/15/2024 07:23, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**85.8**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S60829.16

Sample Tag: MW-16-80_041024

Collected Date/Time: 04/10/2024 14:45

Matrix: Groundwater

COC Reference: 166916

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 240414B9, Run Date: 04/15/2024 07:49, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**82.4**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S60829.17

Sample Tag: Trip Blank_041024

Collected Date/Time: 04/10/2024 00:01

Matrix: Water

COC Reference: 166916

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240419D3, Run Date: 04/20/2024 13:47, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**96.6**	50.0	200.0
1,4-Difluorobenzene		**95.5**	50.0	200.0
Chlorobenzene-D5		**95.6**	50.0	200.0
1,4-Dichlorobenzene-D4		**93.1**	50.0	200.0

QC Report - Internal Standards per QC Sample

Organics - Volatiles, Prep Batch ID: VF240419W6

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240419D3.BLKW19C

Run in Batch: 240419D3, Run Date: 04/20/2024 13:23, Prep Date: 04/19/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**97.7**	50.0	200.0
1,4-Difluorobenzene		**97.4**	50.0	200.0
Chlorobenzene-D5		**97.5**	50.0	200.0
1,4-Dichlorobenzene-D4		**94.9**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 240419D3.LCSW19C

Run in Batch: 240419D3, Run Date: 04/20/2024 11:49, Prep Date: 04/19/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**100.4**	50.0	200.0
1,4-Difluorobenzene		**100.6**	50.0	200.0
Chlorobenzene-D5		**102.7**	50.0	200.0
1,4-Dichlorobenzene-D4		**103.3**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240419D3.LCSDW19C, Parent Sample ID: 240419D3.LCSW19C

Run in Batch: 240419D3, Run Date: 04/20/2024 12:13, Prep Date: 04/19/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**99.1**	50.0	200.0
1,4-Difluorobenzene		**98.5**	50.0	200.0
Chlorobenzene-D5		**99.3**	50.0	200.0
1,4-Dichlorobenzene-D4		**100.3**	50.0	200.0

QC Report - Internal Standards per QC Sample

Organics - Volatiles, Prep Batch ID: VS240414W1

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 240414A9.BLKW14A

Run in Batch: 240414A9, Run Date: 04/14/2024 12:11, Prep Date: 04/14/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**101.4**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 240414A9.LCSW14A

Run in Batch: 240414A9, Run Date: 04/14/2024 10:31, Prep Date: 04/14/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**99.8**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240414A9.LCSDW14A, Parent Sample ID: 240414A9.LCSW14A

Run in Batch: 240414A9, Run Date: 04/14/2024 10:56, Prep Date: 04/14/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**97.7**	50.0	200.0

Matrix Spike (MS)

Lab Sample ID: 240414A9.6071812M, Parent Sample ID: S60718.08

Run in Batch: 240414A9, Run Date: 04/14/2024 20:33, Prep Date: 04/14/2024, Matrix: WW, Dilution: 20

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**92.6**	50.0	200.0

Matrix Spike (MS)

Lab Sample ID: 240414A9.6082911M, Parent Sample ID: S60829.10

Run in Batch: 240414A9, Run Date: 04/14/2024 19:42, Prep Date: 04/14/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**90.8**	50.0	200.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 240414A9.6071813N, Parent Sample ID: 240414A9.6071812M

Run in Batch: 240414A9, Run Date: 04/14/2024 20:58, Prep Date: 04/14/2024, Matrix: WW, Dilution: 20

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**91.6**	50.0	200.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 240414A9.6082912N, Parent Sample ID: 240414A9.6082911M

Run in Batch: 240414A9, Run Date: 04/14/2024 20:07, Prep Date: 04/14/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**90.6**	50.0	200.0

QC Report - Internal Standards per QC Sample

Organics - Volatiles, Prep Batch ID: VS240414W3

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240414B9.BLKW14B

Run in Batch: 240414B9, Run Date: 04/15/2024 00:18, Prep Date: 04/14/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**96.7**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 240414B9.LCSW14B

Run in Batch: 240414B9, Run Date: 04/14/2024 22:37, Prep Date: 04/14/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**99.6**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240414B9.LCSDW14B, Parent Sample ID: 240414B9.LCSW14B

Run in Batch: 240414B9, Run Date: 04/14/2024 23:02, Prep Date: 04/14/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**95.3**	50.0	200.0

QC Report - Internal Standards per QC Sample

Organics - Volatiles, Prep Batch ID: VS240419W1

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 240419A9.BLKW19A

Run in Batch: 240419A9, Run Date: 04/19/2024 11:46, Prep Date: 04/19/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**96.7**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 240419A9.LCSW19A

Run in Batch: 240419A9, Run Date: 04/19/2024 09:17, Prep Date: 04/19/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**105.0**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240419A9.LCSDW19A, Parent Sample ID: 240419A9.LCSW19A

Run in Batch: 240419A9, Run Date: 04/19/2024 09:42, Prep Date: 04/19/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**102.7**	50.0	200.0

Matrix Spike (MS)

Lab Sample ID: 240419A9.6084807M, Parent Sample ID: S60848.03

Run in Batch: 240419A9, Run Date: 04/19/2024 10:07, Prep Date: 04/19/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**96.2**	50.0	200.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 240419A9.6084808N, Parent Sample ID: 240419A9.6084807M

Run in Batch: 240419A9, Run Date: 04/19/2024 10:32, Prep Date: 04/19/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**106.0**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VF240419W6

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240419D3.BLKW19C

Run in Batch: 240419D3, Run Date: 04/20/2024 13:23, Prep Date: 04/19/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Diethyl ether		ND	1.00	ug/l
Acetone		ND	10.00	ug/l
Methyl iodide		ND	1.00	ug/l
Carbon disulfide		ND	1.00	ug/l
tert-Methyl butyl ether (MTBE)		ND	1.00	ug/l
Acrylonitrile		ND	1.00	ug/l
2-Butanone (MEK)		ND	10.00	ug/l
Dichlorodifluoromethane		ND	1.00	ug/l
Chloromethane		ND	1.00	ug/l
Vinyl chloride		ND	1.00	ug/l
Bromomethane		ND	1.00	ug/l
Chloroethane		ND	1.00	ug/l
Trichlorofluoromethane		ND	1.00	ug/l
1,1-Dichloroethene		ND	1.00	ug/l
Methylene chloride		ND	1.00	ug/l
trans-1,2-Dichloroethene		ND	1.00	ug/l
1,1-Dichloroethane		ND	1.00	ug/l
cis-1,2-Dichloroethene		ND	1.00	ug/l
Tetrahydrofuran		ND	10.00	ug/l
Chloroform		ND	1.00	ug/l
Bromochloromethane		ND	1.00	ug/l
1,1,1-Trichloroethane		ND	1.00	ug/l
4-Methyl-2-pentanone (MIBK)		ND	10.00	ug/l
2-Hexanone		ND	10.00	ug/l
Carbon tetrachloride		ND	1.00	ug/l
Benzene		ND	1.00	ug/l
1,2-Dichloroethane		ND	1.00	ug/l
Trichloroethene		ND	1.00	ug/l
1,2-Dichloropropane		ND	1.00	ug/l
Bromodichloromethane		ND	1.00	ug/l
Dibromomethane		ND	1.00	ug/l
cis-1,3-Dichloropropene		ND	1.00	ug/l
Toluene		ND	1.00	ug/l
trans-1,3-Dichloropropene		ND	1.00	ug/l
1,1,2-Trichloroethane		ND	1.00	ug/l
Tetrachloroethene		ND	1.00	ug/l
trans-1,4-Dichloro-2-butene		ND	1.00	ug/l
Dibromochloromethane		ND	1.00	ug/l
1,2-Dibromoethane		ND	1.00	ug/l
Chlorobenzene		ND	1.00	ug/l
1,1,1,2-Tetrachloroethane		ND	1.00	ug/l
Ethylbenzene		ND	1.00	ug/l
p,m-Xylene		ND	2.00	ug/l
o-Xylene		ND	1.00	ug/l
Styrene		ND	1.00	ug/l
Isopropylbenzene		ND	1.00	ug/l

Organics - Volatiles, Prep Batch ID: VF240419W6 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK) (continued)

Lab Sample ID: 240419D3.BLKW19C

Run in Batch: 240419D3, Run Date: 04/20/2024 13:23, Prep Date: 04/19/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Bromoform		ND	1.00	ug/l
1,1,2,2-Tetrachloroethane		ND	1.00	ug/l
1,2,3-Trichloropropane		ND	1.00	ug/l
n-Propylbenzene		ND	1.00	ug/l
Bromobenzene		ND	1.00	ug/l
1,3,5-Trimethylbenzene		ND	1.00	ug/l
tert-Butylbenzene		ND	1.00	ug/l
1,2,4-Trimethylbenzene		ND	1.00	ug/l
sec-Butylbenzene		ND	1.00	ug/l
p-Isopropyltoluene		ND	1.00	ug/l
1,3-Dichlorobenzene		ND	1.00	ug/l
1,4-Dichlorobenzene		ND	1.00	ug/l
1,2-Dichlorobenzene		ND	1.00	ug/l
1,2,3-Trimethylbenzene		ND	1.00	ug/l
n-Butylbenzene		ND	1.00	ug/l
Hexachloroethane		ND	1.00	ug/l
1,2-Dibromo-3-chloropropane		ND	1.00	ug/l
1,2,4-Trichlorobenzene		ND	1.00	ug/l
1,2,3-Trichlorobenzene		ND	1.00	ug/l
Naphthalene		ND	1.00	ug/l
2-Methylnaphthalene		ND	1.00	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 240419D3.LCSW19C

Run in Batch: 240419D3, Run Date: 04/20/2024 11:49, Prep Date: 04/19/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Diethyl ether		104.2	67.4	121.2
Acetone		105.9	29.9	161.5
Methyl iodide		104.4	68.8	116.4
Carbon disulfide		89.5	63.8	137.4
tert-Methyl butyl ether (MTBE)		109.9	73.2	122.4
Acrylonitrile		99.2	69.9	128.9
2-Butanone (MEK)		97.0	44.0	134.4
Dichlorodifluoromethane		111.5	10.0	222.8
Chloromethane		121.8	23.8	166.5
Vinyl chloride		109.6	43.5	149.1
Bromomethane		103.8	56.8	151.3
Chloroethane		101.3	53.4	149.4
Trichlorofluoromethane		98.9	59.7	151.8
1,1-Dichloroethene		98.1	69.6	139.4
Methylene chloride		105.5	73.3	121.1
trans-1,2-Dichloroethene		99.3	73.6	129.3
1,1-Dichloroethane		103.2	71.5	126.2
cis-1,2-Dichloroethene		105.0	76.6	122.1
Tetrahydrofuran		96.5	59.0	117.9
Chloroform		102.2	78.4	124.0

Organics - Volatiles, Prep Batch ID: VF240419W6 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 240419D3.LCSW19C

Run in Batch: 240419D3, Run Date: 04/20/2024 11:49, Prep Date: 04/19/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Bromochloromethane		106.0	78.2	120.8
1,1,1-Trichloroethane		101.6	79.4	130.9
4-Methyl-2-pentanone (MIBK)		104.0	71.6	125.2
2-Hexanone		105.4	55.4	136.9
Carbon tetrachloride		100.1	72.6	133.0
Benzene		105.7	79.9	124.9
1,2-Dichloroethane		98.5	76.0	126.3
Trichloroethene		108.4	79.7	124.2
1,2-Dichloropropane		107.8	78.6	126.4
Bromodichloromethane		104.7	80.4	128.2
Dibromomethane		106.3	76.9	122.1
cis-1,3-Dichloropropene		101.2	79.8	129.9
Toluene		105.0	79.8	124.5
trans-1,3-Dichloropropene		99.8	74.0	131.3
1,1,2-Trichloroethane		106.0	78.7	123.1
Tetrachloroethene		102.3	74.5	124.5
trans-1,4-Dichloro-2-butene		85.6	68.6	135.4
Dibromochloromethane		104.1	74.6	127.2
1,2-Dibromoethane		102.8	70.3	133.7
Chlorobenzene		103.0	79.2	122.7
1,1,1,2-Tetrachloroethane		105.4	80.3	128.2
Ethylbenzene		100.7	79.5	129.1
p,m-Xylene		101.6	79.4	132.2
o-Xylene		102.7	80.2	131.0
Styrene		105.5	69.5	126.7
Isopropylbenzene		101.3	74.4	121.5
Bromoform		104.2	69.4	128.0
1,1,2,2-Tetrachloroethane		92.2	79.8	126.3
1,2,3-Trichloropropane		98.8	78.3	138.8
n-Propylbenzene		97.9	82.0	130.7
Bromobenzene		104.1	78.7	124.6
1,3,5-Trimethylbenzene		101.6	81.3	128.9
tert-Butylbenzene		100.0	80.7	128.9
1,2,4-Trimethylbenzene		102.6	81.4	130.8
sec-Butylbenzene		95.7	77.4	129.8
p-Isopropyltoluene		98.6	79.8	137.5
1,3-Dichlorobenzene		101.3	77.0	131.3
1,4-Dichlorobenzene		98.7	20.7	137.7
1,2-Dichlorobenzene		101.2	10.0	166.2
1,2,3-Trimethylbenzene		104.1	76.3	124.2
n-Butylbenzene		90.8	80.0	133.3
Hexachloroethane		109.2	23.8	138.1
1,2-Dibromo-3-chloropropane		97.6	21.2	189.4
1,2,4-Trichlorobenzene		95.5	27.4	143.4
1,2,3-Trichlorobenzene		97.8	75.4	131.4
Naphthalene		98.1	32.9	135.8

Organics - Volatiles, Prep Batch ID: VF240419W6 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 240419D3.LCSW19C

Run in Batch: 240419D3, Run Date: 04/20/2024 11:49, Prep Date: 04/19/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
2-Methylnaphthalene		109.7	25.5	165.5

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240419D3.LCSDW19C, Parent Sample ID: 240419D3.LCSW19C

Run in Batch: 240419D3, Run Date: 04/20/2024 12:13, Prep Date: 04/19/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Diethyl ether		103.6	67.4	121.2	0.6	30.0
Acetone		110.8	29.9	161.5	4.5	30.0
Methyl iodide		100.7	68.8	116.4	3.6	30.0
Carbon disulfide		87.9	63.8	137.4	1.8	30.0
tert-Methyl butyl ether (MTBE)		112.2	73.2	122.4	2.0	30.0
Acrylonitrile		105.1	69.9	128.9	5.8	30.0
2-Butanone (MEK)		105.5	44.0	134.4	8.4	30.0
Dichlorodifluoromethane		112.0	10.0	222.8	0.4	30.0
Chloromethane		120.6	23.8	166.5	1.0	30.0
Vinyl chloride		106.3	43.5	149.1	3.1	30.0
Bromomethane		101.4	56.8	151.3	2.4	30.0
Chloroethane		99.2	53.4	149.4	2.1	30.0
Trichlorofluoromethane		96.6	59.7	151.8	2.4	30.0
1,1-Dichloroethene		95.3	69.6	139.4	2.9	30.0
Methylene chloride		103.9	73.3	121.1	1.5	30.0
trans-1,2-Dichloroethene		98.3	73.6	129.3	1.0	30.0
1,1-Dichloroethane		102.1	71.5	126.2	1.0	30.0
cis-1,2-Dichloroethene		103.3	76.6	122.1	1.6	30.0
Tetrahydrofuran		102.0	59.0	117.9	5.5	30.0
Chloroform		100.2	78.4	124.0	2.0	30.0
Bromochloromethane		105.1	78.2	120.8	0.8	30.0
1,1,1-Trichloroethane		100.2	79.4	130.9	1.4	30.0
4-Methyl-2-pentanone (MIBK)		113.5	71.6	125.2	8.8	30.0
2-Hexanone		114.9	55.4	136.9	8.6	30.0
Carbon tetrachloride		100.8	72.6	133.0	0.7	30.0
Benzene		104.6	79.9	124.9	1.0	30.0
1,2-Dichloroethane		99.1	76.0	126.3	0.6	30.0
Trichloroethene		100.7	79.7	124.2	7.3	30.0
1,2-Dichloropropane		106.6	78.6	126.4	1.1	30.0
Bromodichloromethane		103.3	80.4	128.2	1.3	30.0
Dibromomethane		106.0	76.9	122.1	0.3	30.0
cis-1,3-Dichloropropene		101.0	79.8	129.9	0.3	30.0
Toluene		103.8	79.8	124.5	1.2	30.0
trans-1,3-Dichloropropene		100.6	74.0	131.3	0.8	30.0
1,1,2-Trichloroethane		107.2	78.7	123.1	1.2	30.0
Tetrachloroethene		100.5	74.5	124.5	1.7	30.0
trans-1,4-Dichloro-2-butene		91.5	68.6	135.4	6.6	30.0
Dibromochloromethane		105.8	74.6	127.2	1.7	30.0
1,2-Dibromoethane		106.3	70.3	133.7	3.3	30.0
Chlorobenzene		103.5	79.2	122.7	0.5	30.0

Organics - Volatiles, Prep Batch ID: VF240419W6 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: 240419D3.LCSDW19C, Parent Sample ID: 240419D3.LCSW19C

Run in Batch: 240419D3, Run Date: 04/20/2024 12:13, Prep Date: 04/19/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,1,1,2-Tetrachloroethane		106.3	80.3	128.2	0.8	30.0
Ethylbenzene		101.3	79.5	129.1	0.6	30.0
p,m-Xylene		102.2	79.4	132.2	0.6	30.0
o-Xylene		102.7	80.2	131.0	0.1	30.0
Styrene		105.8	69.5	126.7	0.3	30.0
Isopropylbenzene		102.3	74.4	121.5	1.0	30.0
Bromoform		109.7	69.4	128.0	5.2	30.0
1,1,2,2-Tetrachloroethane		107.2	79.8	126.3	15.0	30.0
1,2,3-Trichloropropane		107.1	78.3	138.8	8.1	30.0
n-Propylbenzene		99.8	82.0	130.7	1.9	30.0
Bromobenzene		104.3	78.7	124.6	0.2	30.0
1,3,5-Trimethylbenzene		101.8	81.3	128.9	0.2	30.0
tert-Butylbenzene		100.0	80.7	128.9	0.0	30.0
1,2,4-Trimethylbenzene		103.4	81.4	130.8	0.8	30.0
sec-Butylbenzene		96.9	77.4	129.8	1.2	30.0
p-Isopropyltoluene		99.8	79.8	137.5	1.2	30.0
1,3-Dichlorobenzene		102.1	77.0	131.3	0.9	30.0
1,4-Dichlorobenzene		100.5	20.7	137.7	1.7	30.0
1,2-Dichlorobenzene		103.2	10.0	166.2	1.9	30.0
1,2,3-Trimethylbenzene		105.3	76.3	124.2	1.1	30.0
n-Butylbenzene		93.9	80.0	133.3	3.4	30.0
Hexachloroethane		110.6	23.8	138.1	1.2	30.0
1,2-Dibromo-3-chloropropane		107.7	21.2	189.4	9.8	30.0
1,2,4-Trichlorobenzene		99.7	27.4	143.4	4.2	30.0
1,2,3-Trichlorobenzene		102.1	75.4	131.4	4.3	30.0
Naphthalene		105.2	32.9	135.8	7.0	30.0
2-Methylnaphthalene		120.6	25.5	165.5	9.5	30.0

Organics - Volatiles, Prep Batch ID: VS240414W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 240414A9.BLKW14A

Run in Batch: 240414A9, Run Date: 04/14/2024 12:11, Prep Date: 04/14/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
1,4-Dioxane		ND	0.02	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 240414A9.LCSW14A

Run in Batch: 240414A9, Run Date: 04/14/2024 10:31, Prep Date: 04/14/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		91.0	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240414A9.LCSDW14A, Parent Sample ID: 240414A9.LCSW14A

Run in Batch: 240414A9, Run Date: 04/14/2024 10:56, Prep Date: 04/14/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		96.4	70.0	130.0	5.7	30.0

Matrix Spike (MS)

Lab Sample ID: 240414A9.6071812M, Parent Sample ID: S60718.08

Run in Batch: 240414A9, Run Date: 04/14/2024 20:33, Prep Date: 04/14/2024, Matrix: WW, Dilution: 20

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		93.5	70.0	130.0

Matrix Spike (MS)

Lab Sample ID: 240414A9.6082911M, Parent Sample ID: S60829.10

Run in Batch: 240414A9, Run Date: 04/14/2024 19:42, Prep Date: 04/14/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		98.0	70.0	130.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 240414A9.6071813N, Parent Sample ID: 240414A9.6071812M

Run in Batch: 240414A9, Run Date: 04/14/2024 20:58, Prep Date: 04/14/2024, Matrix: WW, Dilution: 20

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		89.4	70.0	130.0	3.2	30.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 240414A9.6082912N, Parent Sample ID: 240414A9.6082911M

Run in Batch: 240414A9, Run Date: 04/14/2024 20:07, Prep Date: 04/14/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		83.1	70.0	130.0	11.8	30.0

Organics - Volatiles, Prep Batch ID: VS240414W3

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240414B9.BLKW14B

Run in Batch: 240414B9, Run Date: 04/15/2024 00:18, Prep Date: 04/14/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
1,4-Dioxane		ND	0.02	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 240414B9.LCSW14B

Run in Batch: 240414B9, Run Date: 04/14/2024 22:37, Prep Date: 04/14/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		90.8	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240414B9.LCSDW14B, Parent Sample ID: 240414B9.LCSW14B

Run in Batch: 240414B9, Run Date: 04/14/2024 23:02, Prep Date: 04/14/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		97.1	70.0	130.0	6.8	30.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: VS240419W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 240419A9.BLKW19A

Run in Batch: 240419A9, Run Date: 04/19/2024 11:46, Prep Date: 04/19/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
1,4-Dioxane	*	3.4980	0.02	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 240419A9.LCSW19A

Run in Batch: 240419A9, Run Date: 04/19/2024 09:17, Prep Date: 04/19/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		94.0	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240419A9.LCSDW19A, Parent Sample ID: 240419A9.LCSW19A

Run in Batch: 240419A9, Run Date: 04/19/2024 09:42, Prep Date: 04/19/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		93.8	70.0	130.0	0.2	30.0

Matrix Spike (MS)

Lab Sample ID: 240419A9.6084807M, Parent Sample ID: S60848.03

Run in Batch: 240419A9, Run Date: 04/19/2024 10:07, Prep Date: 04/19/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		94.5	70.0	130.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 240419A9.6084808N, Parent Sample ID: 240419A9.6084807M

Run in Batch: 240419A9, Run Date: 04/19/2024 10:32, Prep Date: 04/19/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		99.5	70.0	130.0	4.8	30.0

Merit Laboratories Login Checklist

Lab Set ID: S60829
Client: ARCADIS_NOVI (ARCADIS U.S., Inc.)
Project: 30214036.0047A / RACER Lansing GWS
Submitted: 04/10/2024 15:50 Login User: MMC

Attention: Kaitlyn Hunt
Address: Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 6.0
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[ ] Yes	[X] No	[ ] N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	[X] Yes	[ ] No	[ ] N/A	Do sample have correct chemical preservation	
11.	[ ] Yes	[ ] No	[X] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[ ] Yes	[X] No	[ ] N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[ ] Yes	[X] No	[ ] N/A	Samples require laboratory filtration	
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[X] No	[ ] N/A	Do water VOC or TOX bottles contain headspace	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Plant 2

Merit Laboratories, Inc.
2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 2

170528

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Tiffany Linder, Kaitlyn Hunt
COMPANY: Arcadis
ADDRESS: 28550 Cabot Drive, Suite 500
CITY: Novi STATE: MI ZIP CODE: 48377
PHONE NO.: 947-777-5215 CELL NO.: P.O. NO.:
E-MAIL ADDRESS: Kaitlyn.Hunt@arcadis.com QUOTE NO.:

INVOICE TO

CONTACT NAME: ☒ SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: E-MAIL ADDRESS: Tiffany.Linder@arcadis.com

PROJECT NO./NAME: 30214036.0047A / RACER Lansing GWS
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Austin Westhuis / [signature]

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☒ EDD ☐ OTHER

MATRIX CODE: W=WATER GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR WS=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐ OHIO VAP ☐ Drinking Water ☐ DoD ☐ NPDES
Project Locations: ☐ Detroit ☐ New York ☐ Other
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	COLLECTION DATE	COLLECTION TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	1,4-Dioxane 8260 SIMS	VOC - 8260 SIMS									Special Instructions
60829.01	4/8/24	1335	mw-14-58R_040824	GW	3		3						X	X									
.02	4/8/24	1435	mw-22-153_040824	GW	3		3						X	X									
.03	4/8/24	1530	mw-22-155_040824	GW	3		3						X	X									
.04	4/8/24	1635	mw-22-156_040824	GW	3		3						X	X									
.05	4/8/24	2000	mw-22-157_040824	GW	3		3						X	X									
.06	4/8/24	1735	mw-23-161_040824	GW	3		3						X										
.07	4/8/24	1820	mw-23-162_040824	GW	3		3						X										
.08	4/8/24	1910	mw-23-163_040824	GW	3		3						X										
.09	4/8/24	—	DUP-01_040824	GW	3		3						X	X									
.10/.11/.12	4/9/24	1350	mw-14-56_040924	GW	9		9						X										MS/MSD
.13	4/10/24	1010	mw-16-83_041024	GW	3		3						X										
.14	4/10/24	1135	mw-15-73_041024	GW	3		3						X										

RELINQUISHED BY: SIGNATURE/ORGANIZATION: [signature] / Arcadis ☐ Sampler	DATE: 4/10/24	TIME: 1550	RELINQUISHED BY: SIGNATURE/ORGANIZATION: Merit Drop Box	DATE: 4/10/24	TIME: 1550
RECEIVED BY: SIGNATURE/ORGANIZATION: Merit Drop Box	DATE: 4/10/24	TIME: 1550	RECEIVED BY: SIGNATURE/ORGANIZATION: M Quintero	DATE: 4/10/24	TIME: 1550
RELINQUISHED BY: SIGNATURE/ORGANIZATION:	DATE:	TIME:	SEAL NO.: SEAL INTACT YES ☐ NO ☐ INITIALS:	NOTES: TEMP. ON ARRIVAL: 6.0	
RECEIVED BY: SIGNATURE/ORGANIZATION:	DATE:	TIME:	SEAL NO.: SEAL INTACT YES ☐ NO ☐ INITIALS:		

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Plant 2

Merit Laboratories, Inc.
2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 2 OF 2

166916

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Tiffany Linder, Kaitlyn Hunt
COMPANY: Arcadis
ADDRESS: 28550 Cabot Drive, Suite 500
CITY: Novi | STATE: MI | ZIP CODE: 48377
PHONE NO.: 947-777-5215 | CELL NO.: | P.O. NO.:
E-MAIL ADDRESS: Kaitlyn.Hunt@arcadis.com | QUOTE NO.:

INVOICE TO

CONTACT NAME: | ☒ SAME
COMPANY:
ADDRESS:
CITY: | STATE: | ZIP CODE:
PHONE NO.: | E-MAIL ADDRESS: Tiffany.Linder@arcadis.com

PROJECT NO./NAME: 30214036.0047A / PACER Lansing GWS
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Austin Westhuis / [signature]

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☒ EDD ☐ OTHER

MATRIX CODE: W=WATER GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR WS=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐ OHIO VAP ☐ Drinking Water ☐ DoD ☐ NPDES
Project Locations: ☐ Detroit ☐ New York ☐ Other
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	COLLECTION DATE	COLLECTION TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	1,4-Dioxane 8260 SIMS	VOC - 8260 SIMS
60829.15	4/10/24	1350	MW-20-126_041024	GW	3		3						X	
.16	4/10/24	1445	MW-16-80_041024	GW	3		3						X	
.17	4/8/24	—	Trip Blank	GW	1		1							X

RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
	[signature] / Arcadis ☒ Sampler	4/10/24	1550
RECEIVED BY: SIGNATURE/ORGANIZATION	Merit Drop Box	4/10/24	1550
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
	Merit Drop Box	4/10/24	1550
RECEIVED BY: SIGNATURE/ORGANIZATION	M Ambrato	4/10/24	1550

SEAL NO. | SEAL INTACT YES ☐ NO ☐ | INITIALS
SEAL NO. | SEAL INTACT YES ☐ NO ☐ | INITIALS

NOTES: TEMP. ON ARRIVAL 6.0

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 1.26.22

Report of Analysis

Arcadis U.S., Inc.
630 Plaza Drive
Suite 600
Highlands Ranch, CO 80129
Attention: Tiffany Linder

Project Name: RACER Lansing GWS

Project Number: 30214036.0037A

Lot Number:**ZD10028**

Date Completed:04/26/2024

Kathy Smith

04/26/2024 4:09 PM
Approved and released by:
Project Manager II: **Kathy E. Smith**





The electronic signature above is the equivalent of a handwritten signature.
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Case Narrative
Arcadis U.S., Inc.
Lot Number: ZD10028

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.
Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved The NELAC Institute (TNI) standards, the Pace Analytical Services, LLC ("Pace") Laboratory Quality Manual, standard operating procedures (SOPs), and Pace policies. Additionally, the DoD QSM version 5.4 has been followed for these samples, and specifically Table B-15 was followed for all PFAS samples. Any exceptions to the TNI standards, the Laboratory Quality Manual, SOPs, the DoD QSM, or policies are qualified on the results page or discussed below.

All QC associated with these samples were compliant with DOD QSM 5.4 table B-15 and our PFAS SOP.
Correction factors (CF) are used to calculate the original sample concentration. The CF is the inverse of the concentration factor (sample volume / extract final volume) times the dilution factor (DF). The CF is calculated as follows:

CF = DF * FV / Vo
FV is volume of extract (mL)
Vo is initial sample volume (mL)
DF is dilution factor. For undiluted analysis, DF = 1.

Sample concentration for aqueous samples:
Concentration (ng/L) = Cs*CF,

$$C_s = \frac{\left(\frac{(A_s x C_{is})}{A_{is}}\right) - B}{M1}$$

Where

C_s is on column concentration of target analyte in the sample (ng/L)
C_{is} is concentration of internal standard in the sample (ng/L)
A_s is peak response of target analyte in the sample
A_{is} is peak response of internal standard in the sample
M1 is the average RF from ICAL or the slope from linear regression ICAL
B is the y-intercept from the ICAL

Pace is a TNI accredited laboratory; however, the following analyses are currently not listed on our TNI scope of accreditation: E. coli and Total coliforms SM 9223 B-2004, Solid Chemical Material: TOC Walkley-Black, Biological Tissue: All, Non-Potable Water: SGT-HEM EPA 1664B, Silica EPA 200.7, Boron, Calcium, Silicon, Strontium EPA 200.8, Bicarbonate, Carbonate, and Hydroxide Alkalinity SM 2320 B-2011, SM 9221 C E-2006 & SM 9222D-2006, Strontium SW-846 6010D, VOC SM 6200 B-2011, Fecal Coliform Colilert-18. If you have any questions regarding this report, please contact the Pace Project Manager listed on the cover page.

PFAS

Surrogate recovery for the following samples was outside the upper control limit: ZD10028-001, ZD10028-002. These samples did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

Sample Summary

Arcadis U.S., Inc.

Lot Number: ZD10028

Project Name: RACER Lansing GWS

Project Number: 30214036.0037A

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	MW-14-58R_040824	Aqueous	04/08/2024 1335	04/10/2024
002	DUP-01_040824	Aqueous	04/08/2024	04/10/2024
003	MW-14-56_040924	Aqueous	04/09/2024 1350	04/10/2024
004	EB-01_040924	Aqueous	04/09/2024 1415	04/10/2024

(4 samples)

Detection Summary

Arcadis U.S., Inc.

Lot Number: ZD10028

Project Name: RACER Lansing GWS

Project Number: 30214036.0037A

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	MW-14-58R_040824	Aqueous	PFBS	PFAS by ID	1.9	J	ng/L	5
001	MW-14-58R_040824	Aqueous	PFHxS	PFAS by ID	2.6	J	ng/L	5
001	MW-14-58R_040824	Aqueous	PFBA	PFAS by ID	9.5		ng/L	5
001	MW-14-58R_040824	Aqueous	PFHpA	PFAS by ID	4.8		ng/L	5
001	MW-14-58R_040824	Aqueous	PFHxA	PFAS by ID	7.1		ng/L	5
001	MW-14-58R_040824	Aqueous	PFNA	PFAS by ID	0.67	J	ng/L	5
001	MW-14-58R_040824	Aqueous	PFOA	PFAS by ID	12		ng/L	5
001	MW-14-58R_040824	Aqueous	PFPeA	PFAS by ID	6.9		ng/L	5
001	MW-14-58R_040824	Aqueous	PFOS	PFAS by ID	5.4		ng/L	5
002	DUP-01_040824	Aqueous	PFBS	PFAS by ID	1.2	J	ng/L	7
002	DUP-01_040824	Aqueous	PFHxS	PFAS by ID	2.5	J	ng/L	7
002	DUP-01_040824	Aqueous	PFBA	PFAS by ID	8.7		ng/L	7
002	DUP-01_040824	Aqueous	PFHpA	PFAS by ID	4.6		ng/L	7
002	DUP-01_040824	Aqueous	PFHxA	PFAS by ID	6.9		ng/L	7
002	DUP-01_040824	Aqueous	PFNA	PFAS by ID	0.77	J	ng/L	7
002	DUP-01_040824	Aqueous	PFOA	PFAS by ID	14		ng/L	7
002	DUP-01_040824	Aqueous	PFPeA	PFAS by ID	6.2		ng/L	7
002	DUP-01_040824	Aqueous	PFOS	PFAS by ID	5.2		ng/L	7
003	MW-14-56_040924	Aqueous	PFBS	PFAS by ID	0.82	J	ng/L	9
003	MW-14-56_040924	Aqueous	PFHxS	PFAS by ID	1.6	J	ng/L	9
003	MW-14-56_040924	Aqueous	PFBA	PFAS by ID	14		ng/L	9
003	MW-14-56_040924	Aqueous	PFHpA	PFAS by ID	2.3	J	ng/L	9
003	MW-14-56_040924	Aqueous	PFHxA	PFAS by ID	6.5	J	ng/L	9
003	MW-14-56_040924	Aqueous	PFNA	PFAS by ID	1.1	J	ng/L	9
003	MW-14-56_040924	Aqueous	PFOA	PFAS by ID	8.2		ng/L	9
003	MW-14-56_040924	Aqueous	PFPeA	PFAS by ID	23		ng/L	9
003	MW-14-56_040924	Aqueous	PFOS	PFAS by ID	15		ng/L	9

(27 detections)

PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZD10028-001**

Description: **MW-14-58R_040824** Matrix: **Aqueous**

Date Sampled: **04/08/2024 1335** Project Name: **RACER Lansing GWS**

Date Received: **04/10/2024** Project Number: **30214036.0037A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	04/23/2024 1717	ALM	04/22/2024 1138	10424

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.8	0.41	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.8	0.57	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND	Q	6.8	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	6.8	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	6.8	0.74	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.8	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.8	0.41	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.8	0.64	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.8	0.79	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**1.9**	**J**	**3.4**	**0.35**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.4	0.66	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.4	0.43	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.4	0.61	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.4	0.52	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**2.6**	**J**	**3.4**	**0.47**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**9.5**		**3.4**	**0.51**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.4	0.40	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**4.8**		**3.4**	**0.38**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**7.1**		**3.4**	**0.59**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**0.67**	**J**	**3.4**	**0.39**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**12**		**3.4**	**0.71**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**6.9**		**3.4**	**0.46**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.4	0.53	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**5.4**		**3.4**	**1.7**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	238	25-150
13C2_6:2FTS	N	330	25-150
13C2_8:2FTS	N	216	25-150
13C2_PFDoA		105	25-150
13C2_PFTeDA		121	25-150
13C3_PFBS		89	25-150
13C3_PFHxS		109	25-150
13C3-HFPO-DA		74	25-150
13C4_PFBA		46	25-150
13C4_PFHpA		80	25-150
13C5_PFHxA		89	25-150
13C5_PFPeA		71	25-150
13C6_PFDA		130	25-150
13C7_PFUdA		101	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZD10028-001**

Description: **MW-14-58R_040824** Matrix: **Aqueous**

Date Sampled: **04/08/2024 1335** Project Name: **RACER Lansing GWS**

Date Received: **04/10/2024** Project Number: **30214036.0037A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		124	25-150
13C8_PFOS		98	25-150
13C8_PFOSA		105	10-150
13C9_PFNA		124	25-150
d5-EtFOSAA		138	25-150
d3-MeFOSAA		138	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZD10028-002**

Description: **DUP-01_040824** Matrix: **Aqueous**

Date Sampled: **04/08/2024** Project Name: **RACER Lansing GWS**

Date Received: **04/10/2024** Project Number: **30214036.0037A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	04/23/2024 1728	ALM	04/22/2024 1138	10424

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.9	0.42	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.9	0.57	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND	Q	6.9	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	6.9	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	6.9	0.75	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.9	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.9	0.42	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.9	0.65	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.9	0.80	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**1.2**	**J**	**3.4**	**0.36**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.4	0.67	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.4	0.43	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.4	0.61	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.4	0.53	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**2.5**	**J**	**3.4**	**0.47**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**8.7**		**3.4**	**0.52**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.4	0.41	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**4.6**		**3.4**	**0.39**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**6.9**		**3.4**	**0.59**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**0.77**	**J**	**3.4**	**0.40**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**14**		**3.4**	**0.71**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**6.2**		**3.4**	**0.47**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.4	0.52	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.4	0.46	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.4	0.54	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**5.2**		**3.4**	**1.7**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	240	25-150
13C2_6:2FTS	N	311	25-150
13C2_8:2FTS	N	206	25-150
13C2_PFDoA		96	25-150
13C2_PFTeDA		104	25-150
13C3_PFBS		84	25-150
13C3_PFHxS		95	25-150
13C3-HFPO-DA		77	25-150
13C4_PFBA		43	25-150
13C4_PFHpA		77	25-150
13C5_PFHxA		86	25-150
13C5_PFPeA		71	25-150
13C6_PFDA		122	25-150
13C7_PFUdA		94	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
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H = Out of holding time
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZD10028-002**

Description: **DUP-01_040824** Matrix: **Aqueous**

Date Sampled: **04/08/2024** Project Name: **RACER Lansing GWS**

Date Received: **04/10/2024** Project Number: **30214036.0037A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		104	25-150
13C8_PFOS		95	25-150
13C8_PFOSA		103	10-150
13C9_PFNA		115	25-150
d5-EtFOSAA		128	25-150
d3-MeFOSAA		136	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZD10028-003**

Description: **MW-14-56_040924** Matrix: **Aqueous**

Date Sampled: **04/09/2024 1350** Project Name: **RACER Lansing GWS**

Date Received: **04/10/2024** Project Number: **30214036.0037A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	04/23/2024 1739	ALM	04/22/2024 1138	10424

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		13	0.79	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		13	1.1	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		13	2.6	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		13	3.3	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		13	1.4	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		13	3.4	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		13	0.79	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		13	1.2	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		13	1.5	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**0.82**	**J**	**6.6**	**0.68**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		6.6	1.3	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		6.6	0.82	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		6.6	1.2	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		6.6	1.0	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		6.6	0.98	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**1.6**	**J**	**6.6**	**0.91**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**14**		**6.6**	**0.98**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		6.6	0.86	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		6.6	0.77	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**2.3**	**J**	**6.6**	**0.73**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**6.5**	**J**	**6.6**	**1.1**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**1.1**	**J**	**6.6**	**0.76**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**8.2**		**6.6**	**1.4**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**23**		**6.6**	**0.89**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		6.6	0.98	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		6.6	0.87	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		6.6	1.0	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**15**		**6.6**	**3.3**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		84	25-150
13C2_6:2FTS		77	25-150
13C2_8:2FTS		51	25-150
13C2_PFDoA		40	25-150
13C2_PFTeDA		51	25-150
13C3_PFBS		56	25-150
13C3_PFHxS		57	25-150
13C3-HFPO-DA		53	25-150
13C4_PFBA		47	25-150
13C4_PFHpA		52	25-150
13C5_PFHxA		61	25-150
13C5_PFPeA		56	25-150
13C6_PFDA		48	25-150
13C7_PFUdA		40	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZD10028-003**

Description: **MW-14-56_040924** Matrix: **Aqueous**

Date Sampled: **04/09/2024 1350** Project Name: **RACER Lansing GWS**

Date Received: **04/10/2024** Project Number: **30214036.0037A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		66	25-150
13C8_PFOS		45	25-150
13C8_PFOSA		45	10-150
13C9_PFNA		54	25-150
d5-EtFOSAA		42	25-150
d3-MeFOSAA		43	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZD10028-004**

Description: **EB-01_040924** Matrix: **Aqueous**

Date Sampled: **04/09/2024 1415** Project Name: **RACER Lansing GWS**

Date Received: **04/10/2024** Project Number: **30214036.0037A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	04/25/2024 1256	NRP	04/24/2024 1048	10557

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.0	0.42	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.0	0.58	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.0	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.0	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.0	0.76	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.0	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.0	0.42	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.0	0.65	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.0	0.81	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.5	0.36	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.5	0.68	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.5	0.44	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.5	0.62	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.5	0.54	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.5	0.52	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.5	0.48	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		3.5	0.52	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.5	0.46	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.5	0.41	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.5	0.39	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.5	0.60	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.5	0.40	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.5	0.72	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.5	0.47	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.5	0.52	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.5	0.46	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.5	0.55	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.5	1.7	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		108	25-150
13C2_6:2FTS		111	25-150
13C2_8:2FTS		92	25-150
13C2_PFDoA		99	25-150
13C2_PFTeDA		99	25-150
13C3_PFBS		102	25-150
13C3_PFHxS		111	25-150
13C3-HFPO-DA		102	25-150
13C4_PFBA		106	25-150
13C4_PFHpA		102	25-150
13C5_PFHxA		115	25-150
13C5_PFPeA		110	25-150
13C6_PFDA		109	25-150
13C7_PFUdA		99	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZD10028-004**

Description: **EB-01_040924** Matrix: **Aqueous**

Date Sampled: **04/09/2024 1415** Project Name: **RACER Lansing GWS**

Date Received: **04/10/2024** Project Number: **30214036.0037A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		106	25-150
13C8_PFOS		96	25-150
13C8_PFOSA		97	10-150
13C9_PFNA		101	25-150
d5-EtFOSAA		99	25-150
d3-MeFOSAA		107	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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QC Summary

PFAS by LC/MS/MS - MB

Sample ID: ZQ10424-001
Batch: 10424
Analytical Method: PFAS by ID SOP
Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 04/22/2024 1138

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
9Cl-PF3ONS	ND		1	8.0	0.48	ng/L	04/23/2024 1449
11Cl-PF3OUdS	ND		1	8.0	0.66	ng/L	04/23/2024 1449
8:2 FTS	ND		1	8.0	1.6	ng/L	04/23/2024 1449
6:2 FTS	ND		1	8.0	2.0	ng/L	04/23/2024 1449
4:2 FTS	ND		1	8.0	0.87	ng/L	04/23/2024 1449
GenX	ND		1	8.0	2.1	ng/L	04/23/2024 1449
ADONA	ND		1	8.0	0.48	ng/L	04/23/2024 1449
EtFOSAA	ND		1	8.0	0.75	ng/L	04/23/2024 1449
MeFOSAA	ND		1	8.0	0.93	ng/L	04/23/2024 1449
PFBS	ND		1	4.0	0.41	ng/L	04/23/2024 1449
PFDS	ND		1	4.0	0.78	ng/L	04/23/2024 1449
PFHpS	ND		1	4.0	0.50	ng/L	04/23/2024 1449
PFNS	ND		1	4.0	0.71	ng/L	04/23/2024 1449
PFOSA	ND		1	4.0	0.61	ng/L	04/23/2024 1449
PFPeS	ND		1	4.0	0.59	ng/L	04/23/2024 1449
PFHxS	ND		1	4.0	0.55	ng/L	04/23/2024 1449
PFBA	ND		1	4.0	0.60	ng/L	04/23/2024 1449
PFDA	ND		1	4.0	0.52	ng/L	04/23/2024 1449
PFDoA	ND		1	4.0	0.47	ng/L	04/23/2024 1449
PFHpA	ND		1	4.0	0.45	ng/L	04/23/2024 1449
PFHxA	ND		1	4.0	0.69	ng/L	04/23/2024 1449
PFNA	ND		1	4.0	0.46	ng/L	04/23/2024 1449
PFOA	ND		1	4.0	0.83	ng/L	04/23/2024 1449
PFPeA	ND		1	4.0	0.54	ng/L	04/23/2024 1449
PFTeDA	ND		1	4.0	0.60	ng/L	04/23/2024 1449
PFTrDA	ND		1	4.0	0.53	ng/L	04/23/2024 1449
PFUdA	ND		1	4.0	0.63	ng/L	04/23/2024 1449
PFOS	ND		1	4.0	2.0	ng/L	04/23/2024 1449

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		99	25-150
13C2_6:2FTS		125	25-150
13C2_8:2FTS		112	25-150
13C2_PFDoA		101	25-150
13C2_PFTeDA		118	25-150
13C3_PFBS		105	25-150
13C3_PFHxS		99	25-150
13C3-HFPO-DA		101	25-150
13C4_PFBA		103	25-150
13C4_PFHpA		101	25-150
13C5_PFHxA		109	25-150
13C5_PFPeA		109	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: ZQ10424-001
Batch: 10424
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 04/22/2024 1138

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		104	25-150
13C7_PFUdA		91	25-150
13C8_PFOA		115	25-150
13C8_PFOS		100	25-150
13C8_PFOSA		99	10-150
13C9_PFNA		114	25-150
d5-EtFOSAA		102	25-150
d3-MeFOSAA		102	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ10424-002
Batch: 10424
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 04/22/2024 1138

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	13		1	87	50-150	04/23/2024 1459
11Cl-PF3OUdS	15	12		1	81	50-150	04/23/2024 1459
8:2 FTS	15	15		1	101	50-150	04/23/2024 1459
6:2 FTS	15	13		1	89	50-150	04/23/2024 1459
4:2 FTS	15	13		1	86	50-150	04/23/2024 1459
GenX	32	34		1	105	50-150	04/23/2024 1459
ADONA	15	16		1	105	50-150	04/23/2024 1459
EtFOSAA	16	15		1	95	50-150	04/23/2024 1459
MeFOSAA	16	14		1	87	50-150	04/23/2024 1459
PFBS	14	14		1	102	50-150	04/23/2024 1459
PFDS	15	13		1	84	50-150	04/23/2024 1459
PFHpS	15	14		1	90	50-150	04/23/2024 1459
PFNS	15	15		1	96	50-150	04/23/2024 1459
PFOSA	16	17		1	107	50-150	04/23/2024 1459
PFPeS	15	13		1	89	50-150	04/23/2024 1459
PFHxS	15	13		1	88	50-150	04/23/2024 1459
PFBA	16	16		1	100	50-150	04/23/2024 1459
PFDA	16	15		1	96	50-150	04/23/2024 1459
PFDoA	16	18		1	112	50-150	04/23/2024 1459
PFHpA	16	15		1	97	50-150	04/23/2024 1459
PFHxA	16	13		1	83	50-150	04/23/2024 1459
PFNA	16	16		1	98	50-150	04/23/2024 1459
PFOA	16	17		1	107	50-150	04/23/2024 1459
PFPeA	16	17		1	104	50-150	04/23/2024 1459
PFTeDA	16	17		1	103	50-150	04/23/2024 1459
PFTrDA	16	16		1	102	50-150	04/23/2024 1459
PFUdA	16	14		1	87	50-150	04/23/2024 1459
PFOS	15	15		1	100	50-150	04/23/2024 1459

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		105	25-150
13C2_6:2FTS		137	25-150
13C2_8:2FTS		99	25-150
13C2_PFDoA		99	25-150
13C2_PFTeDA		127	25-150
13C3_PFBS		108	25-150
13C3_PFHxS		102	25-150
13C3-HFPO-DA		104	25-150
13C4_PFBA		101	25-150
13C4_PFHpA		102	25-150
13C5_PFHxA		114	25-150
13C5_PFPeA		100	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ10424-002
Batch: 10424
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 04/22/2024 1138

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		102	25-150
13C7_PFUdA		102	25-150
13C8_PFOA		111	25-150
13C8_PFOS		104	25-150
13C8_PFOSA		103	10-150
13C9_PFNA		110	25-150
d5-EtFOSAA		100	25-150
d3-MeFOSAA		108	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID: ZD10028-003MS
Batch: 10424
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 04/22/2024 1138

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	ND	24	20		1	81	50-150	04/23/2024 1749
11Cl-PF3OUdS	ND	25	16		1	67	50-150	04/23/2024 1749
8:2 FTS	ND	25	30		1	122	50-150	04/23/2024 1749
6:2 FTS	ND	25	24		1	95	50-150	04/23/2024 1749
4:2 FTS	ND	24	22		1	92	50-150	04/23/2024 1749
GenX	ND	52	51		1	98	50-150	04/23/2024 1749
ADONA	ND	25	24		1	99	50-150	04/23/2024 1749
EtFOSAA	ND	26	24		1	93	50-150	04/23/2024 1749
MeFOSAA	ND	26	23		1	89	50-150	04/23/2024 1749
PFBS	0.82	23	23		1	97	50-150	04/23/2024 1749
PFDS	ND	25	18		1	72	50-150	04/23/2024 1749
PFHpS	ND	25	25		1	100	50-150	04/23/2024 1749
PFNS	ND	25	20		1	79	50-150	04/23/2024 1749
PFOSA	ND	26	23		1	87	50-150	04/23/2024 1749
PFPeS	ND	24	21		1	85	50-150	04/23/2024 1749
PFHxS	1.6	24	24		1	93	50-150	04/23/2024 1749
PFBA	14	26	40		1	101	50-150	04/23/2024 1749
PFDA	ND	26	26		1	98	50-150	04/23/2024 1749
PFDoA	ND	26	27		1	105	50-150	04/23/2024 1749
PFHpA	2.3	26	25		1	88	50-150	04/23/2024 1749
PFHxA	6.5	26	30		1	89	50-150	04/23/2024 1749
PFNA	1.1	26	28		1	102	50-150	04/23/2024 1749
PFOA	8.2	26	33		1	95	50-150	04/23/2024 1749
PFPeA	23	26	41		1	67	50-150	04/23/2024 1749
PFTeDA	ND	26	26		1	100	50-150	04/23/2024 1749
PFTrDA	ND	26	22		1	86	50-150	04/23/2024 1749
PFUdA	ND	26	27		1	103	50-150	04/23/2024 1749
PFOS	15	24	34		1	79	50-150	04/23/2024 1749

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		91	25-150
13C2_6:2FTS		87	25-150
13C2_8:2FTS		54	25-150
13C2_PFDoA		44	25-150
13C2_PFTeDA		55	25-150
13C3_PFBS		61	25-150
13C3_PFHxS		56	25-150
13C3-HFPO-DA		56	25-150
13C4_PFBA		50	25-150
13C4_PFHpA		58	25-150
13C5_PFHxA		64	25-150
13C5_PFPeA		64	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID: ZD10028-003MS
Batch: 10424
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 04/22/2024 1138

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		52	25-150
13C7_PFUdA		39	25-150
13C8_PFOA		68	25-150
13C8_PFOS		53	25-150
13C8_PFOSA		52	10-150
13C9_PFNA		57	25-150
d5-EtFOSAA		46	25-150
d3-MeFOSAA		49	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MSD

Sample ID: ZD10028-003MD
Batch: 10424
Analytical Method: PFAS by ID SOP
Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 04/22/2024 1138

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
9Cl-PF3ONS	ND	30	27		1	88	30	50-150	30	04/23/2024 1800
11Cl-PF3OUdS	ND	30	24	+	1	79	37	50-150	30	04/23/2024 1800
8:2 FTS	ND	31	30		1	98	0.57	50-150	30	04/23/2024 1800
6:2 FTS	ND	31	34	+	1	111	36	50-150	30	04/23/2024 1800
4:2 FTS	ND	30	27		1	91	20	50-150	30	04/23/2024 1800
GenX	ND	65	64		1	100	23	50-150	30	04/23/2024 1800
ADONA	ND	30	29		1	96	19	50-150	30	04/23/2024 1800
EtFOSAA	ND	32	32		1	98	27	50-150	30	04/23/2024 1800
MeFOSAA	ND	32	37	+	1	114	45	50-150	30	04/23/2024 1800
PFBS	0.82	29	29		1	99	22	50-150	30	04/23/2024 1800
PFDS	ND	31	23		1	74	24	50-150	30	04/23/2024 1800
PFHpS	ND	31	27		1	88	9.0	50-150	30	04/23/2024 1800
PFNS	ND	31	25		1	82	25	50-150	30	04/23/2024 1800
PFOSA	ND	32	34	+	1	104	39	50-150	30	04/23/2024 1800
PFPeS	ND	30	30	+	1	98	35	50-150	30	04/23/2024 1800
PFHxS	1.6	29	30		1	97	24	50-150	30	04/23/2024 1800
PFBA	14	32	47		1	103	16	50-150	30	04/23/2024 1800
PFDA	ND	32	29		1	89	11	50-150	30	04/23/2024 1800
PFDoA	ND	32	35		1	108	24	50-150	30	04/23/2024 1800
PFHpA	2.3	32	34		1	98	29	50-150	30	04/23/2024 1800
PFHxA	6.5	32	37		1	95	23	50-150	30	04/23/2024 1800
PFNA	1.1	32	34		1	101	20	50-150	30	04/23/2024 1800
PFOA	8.2	32	40		1	97	18	50-150	30	04/23/2024 1800
PFPeA	23	32	51		1	87	24	50-150	30	04/23/2024 1800
PFTeDA	ND	32	38	+	1	117	38	50-150	30	04/23/2024 1800
PFTrDA	ND	32	38	+	1	116	51	50-150	30	04/23/2024 1800
PFUdA	ND	32	35		1	108	26	50-150	30	04/23/2024 1800
PFOS	15	30	37		1	74	8.9	50-150	30	04/23/2024 1800

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		65	25-150
13C2_6:2FTS		67	25-150
13C2_8:2FTS		42	25-150
13C2_PFDoA		33	25-150
13C2_PFTeDA		43	25-150
13C3_PFBS		47	25-150
13C3_PFHxS		46	25-150
13C3-HFPO-DA		44	25-150
13C4_PFBA		43	25-150
13C4_PFHpA		45	25-150
13C5_PFHxA		50	25-150
13C5_PFPeA		51	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MSD

Sample ID: ZD10028-003MD
Batch: 10424
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 04/22/2024 1138

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		42	25-150
13C7_PFUdA		33	25-150
13C8_PFOA		48	25-150
13C8_PFOS		42	25-150
13C8_PFOSA		39	10-150
13C9_PFNA		46	25-150
d5-EtFOSAA		36	25-150
d3-MeFOSAA		36	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: ZQ10557-001
Batch: 10557
Analytical Method: PFAS by ID SOP
Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 04/24/2024 1048

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
9Cl-PF3ONS	ND		1	8.0	0.48	ng/L	04/25/2024 1235
11Cl-PF3OUdS	ND		1	8.0	0.66	ng/L	04/25/2024 1235
8:2 FTS	ND		1	8.0	1.6	ng/L	04/25/2024 1235
6:2 FTS	ND		1	8.0	2.0	ng/L	04/25/2024 1235
4:2 FTS	ND		1	8.0	0.87	ng/L	04/25/2024 1235
GenX	ND		1	8.0	2.1	ng/L	04/25/2024 1235
ADONA	ND		1	8.0	0.48	ng/L	04/25/2024 1235
EtFOSAA	ND		1	8.0	0.75	ng/L	04/25/2024 1235
MeFOSAA	ND		1	8.0	0.93	ng/L	04/25/2024 1235
PFBS	ND		1	4.0	0.41	ng/L	04/25/2024 1235
PFDS	ND		1	4.0	0.78	ng/L	04/25/2024 1235
PFHpS	ND		1	4.0	0.50	ng/L	04/25/2024 1235
PFNS	ND		1	4.0	0.71	ng/L	04/25/2024 1235
PFOSA	ND		1	4.0	0.61	ng/L	04/25/2024 1235
PFPeS	ND		1	4.0	0.59	ng/L	04/25/2024 1235
PFHxS	ND		1	4.0	0.55	ng/L	04/25/2024 1235
PFBA	ND		1	4.0	0.60	ng/L	04/25/2024 1235
PFDA	ND		1	4.0	0.52	ng/L	04/25/2024 1235
PFDoA	ND		1	4.0	0.47	ng/L	04/25/2024 1235
PFHpA	ND		1	4.0	0.45	ng/L	04/25/2024 1235
PFHxA	ND		1	4.0	0.69	ng/L	04/25/2024 1235
PFNA	ND		1	4.0	0.46	ng/L	04/25/2024 1235
PFOA	ND		1	4.0	0.83	ng/L	04/25/2024 1235
PFPeA	ND		1	4.0	0.54	ng/L	04/25/2024 1235
PFTeDA	ND		1	4.0	0.60	ng/L	04/25/2024 1235
PFTrDA	ND		1	4.0	0.53	ng/L	04/25/2024 1235
PFUdA	ND		1	4.0	0.63	ng/L	04/25/2024 1235
PFOS	ND		1	4.0	2.0	ng/L	04/25/2024 1235

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		108	25-150
13C2_6:2FTS		98	25-150
13C2_8:2FTS		98	25-150
13C2_PFDoA		103	25-150
13C2_PFTeDA		109	25-150
13C3_PFBS		98	25-150
13C3_PFHxS		113	25-150
13C3-HFPO-DA		111	25-150
13C4_PFBA		105	25-150
13C4_PFHpA		111	25-150
13C5_PFHxA		102	25-150
13C5_PFPeA		100	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: ZQ10557-001
Batch: 10557
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 04/24/2024 1048

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		114	25-150
13C7_PFUdA		95	25-150
13C8_PFOA		108	25-150
13C8_PFOS		103	25-150
13C8_PFOSA		103	10-150
13C9_PFNA		112	25-150
d5-EtFOSAA		108	25-150
d3-MeFOSAA		111	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ10557-002
Batch: 10557
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 04/24/2024 1048

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	13		1	89	50-150	04/25/2024 1246
11Cl-PF3OUdS	15	13		1	85	50-150	04/25/2024 1246
8:2 FTS	15	17		1	108	50-150	04/25/2024 1246
6:2 FTS	15	14		1	90	50-150	04/25/2024 1246
4:2 FTS	15	17		1	111	50-150	04/25/2024 1246
GenX	32	32		1	99	50-150	04/25/2024 1246
ADONA	15	14		1	93	50-150	04/25/2024 1246
EtFOSAA	16	16		1	97	50-150	04/25/2024 1246
MeFOSAA	16	17		1	104	50-150	04/25/2024 1246
PFBS	14	14		1	97	50-150	04/25/2024 1246
PFDS	15	13		1	84	50-150	04/25/2024 1246
PFHpS	15	13		1	88	50-150	04/25/2024 1246
PFNS	15	15		1	97	50-150	04/25/2024 1246
PFOSA	16	16		1	102	50-150	04/25/2024 1246
PFPeS	15	14		1	94	50-150	04/25/2024 1246
PFHxS	15	12		1	82	50-150	04/25/2024 1246
PFBA	16	14		1	90	50-150	04/25/2024 1246
PFDA	16	15		1	97	50-150	04/25/2024 1246
PFDoA	16	16		1	99	50-150	04/25/2024 1246
PFHpA	16	15		1	91	50-150	04/25/2024 1246
PFHxA	16	14		1	88	50-150	04/25/2024 1246
PFNA	16	16		1	102	50-150	04/25/2024 1246
PFOA	16	16		1	98	50-150	04/25/2024 1246
PFPeA	16	15		1	97	50-150	04/25/2024 1246
PFTeDA	16	14		1	90	50-150	04/25/2024 1246
PFTrDA	16	15		1	93	50-150	04/25/2024 1246
PFUdA	16	15		1	96	50-150	04/25/2024 1246
PFOS	15	13		1	90	50-150	04/25/2024 1246

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		102	25-150
13C2_6:2FTS		110	25-150
13C2_8:2FTS		96	25-150
13C2_PFDoA		101	25-150
13C2_PFTeDA		104	25-150
13C3_PFBS		107	25-150
13C3_PFHxS		123	25-150
13C3-HFPO-DA		109	25-150
13C4_PFBA		107	25-150
13C4_PFHpA		107	25-150
13C5_PFHxA		110	25-150
13C5_PFPeA		101	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ10557-002
Batch: 10557
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 04/24/2024 1048

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		110	25-150
13C7_PFUdA		101	25-150
13C8_PFOA		106	25-150
13C8_PFOS		103	25-150
13C8_PFOSA		100	10-150
13C9_PFNA		101	25-150
d5-EtFOSAA		99	25-150
d3-MeFOSAA		110	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Chain of Custody
and
Miscellaneous Documents

Plant 2

Pace Analytical® **Chain of Custody Record**

Pace Analytical Services, LLC.
108 Vantage Point Drive
West Columbia, South Carolina 29172
Telephone No. (803) 791-9700 Fax No. (803) 791-9111
www.pacelabs.com

Number

| | | |

DC#_Title: ENV-FRM-WCOL-0286 v02_Samples Receipt Checklist (SRC)
Effective Date: 8/2/2022

Sample Receipt Checklist (SRC)

Client: AYCOCK Cooler Inspected by/date: CMR / 4/10/24 Lot #: 2D10028

Means of receipt: ☐ Pace ☐ Client ☐ UPS ☒ FedEx ☐ Other: _____

☒ Yes	☐ No		1. Were custody seals present on the cooler?
☒ Yes	☐ No	☐ NA	2. If custody seals were present, were they intact and unbroken?

pH Strip ID: NA Chlorine Strip ID: NA Tested by: NA
Original temperature upon receipt / Derived (Corrected) temperature upon receipt %Solid Snap-Cup ID: NA
2.6 / 2.6 °C NA / NA °C NA / NA °C NA / NA °C
Method: ☐ Temperature Blank ☒ Against Bottles IR Gun ID: 8 IR Gun Correction Factor: 0 °C
Method of coolant: ☒ Wet Ice ☐ Ice Packs ☐ Dry Ice ☐ None

☒ Yes	☐ No	☐ NA	3. Were all coolers received at or below 6.0°C? If no, was Project Manager notified? PM was Notified by: phone / email / face-to-face (circle one).
☐ Yes	☐ No	☒ NA	4. Is the commercial courier's packing slip attached to this form?
☒ Yes	☐ No		5. Were proper custody procedures (relinquished/received) followed?
☒ Yes	☐ No		6. Were sample IDs listed on the COC and all sample containers?
☒ Yes	☐ No		7. Was collection date & time listed on the COC and all sample containers?
☒ Yes	☐ No		8. Did all container label information (ID, date, time) agree with the COC?
☒ Yes	☐ No		9. Were tests to be performed listed on the COC?
☒ Yes	☐ No		10. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)? _____
☒ Yes	☐ No		11. Was adequate sample volume available?
☒ Yes	☐ No		12. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
☒ Yes	☐ No		13. Were all samples containers accounted for? (No missing/excess)
☐ Yes	☐ No	☒ NA	14. Were VOA, 8015C and RSK-175 samples free of bubbles >"pea-size" (¼"or 6mm in diameter) in any of the VOA vials?
☐ Yes	☐ No	☒ NA	15. Were all DRO/metals/nutrient samples received at a pH of < 2?
☐ Yes	☐ No	☒ NA	16. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
☐ Yes	☐ No	☒ NA	17. Were all applicable NH_3/TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?
☒ Yes	☐ No	☐ NA	18. Was the quote number listed on the container label? If yes, Quote # 25329

Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)

Sample(s) NA were received incorrectly preserved and were adjusted accordingly in sample receiving with NA mL of circle one: H_2SO_4, HNO_3, HCl, NaOH using SR # NA. Time of preservation NA. If more than one preservative is needed, please note in the comments below.

Sample(s) NA were received with bubbles >6 mm in diameter.

Samples(s) NA were received with TRC > 0.5 mg/L (If #19 is *no*) and were adjusted accordingly in sample receiving with sodium thiosulfate ($Na_2S_2O_3$) with Unique ID: NA.

Comments:

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Tiffany Linder
Arcadis U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Generated 6/12/2024 12:28:44 PM

JOB DESCRIPTION

Racer Lansing

JOB NUMBER

240-205186-1

Eurofins Cleveland
180 S. Van Buren Avenue
Barberton OH 44203

See page two for job notes and contact information.

my EOL

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

Authorization



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Authorized for release by
Michael DelMonico, Project Manager I
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(330)497-9396

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Definitions/Glossary

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-205186-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job Narrative
240-205186-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 5/24/2024 9:40 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.3°C.

GC/MS Semi VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Method Summary

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-205186-1

Method	Method Description	Protocol	Laboratory
522	1,4 Dioxane (GC/MS SIM)	EPA	EET BUR
522	Solid-Phase Extraction (SPE)	EPA	EET BUR

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

EET BUR = Eurofins Burlington, 530 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Sample Summary

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-205186-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-205186-1	MW-19-118D_052024	Water	05/20/24 12:05	05/24/24 09:40
240-205186-2	MW-19-125_052024	Water	05/20/24 13:40	05/24/24 09:40
240-205186-3	MW-13-44_052024	Water	05/20/24 15:40	05/24/24 09:40
240-205186-4	MW-12-05R_052024	Water	05/20/24 16:45	05/24/24 09:40

Detection Summary

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-205186-1

Client Sample ID: MW-19-118D_052024 — Lab Sample ID: 240-205186-1

No Detections.

Client Sample ID: MW-19-125_052024 — Lab Sample ID: 240-205186-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	0.20		0.20	0.092	ug/L	1		522	Total/NA

Client Sample ID: MW-13-44_052024 — Lab Sample ID: 240-205186-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	3.6		0.20	0.092	ug/L	1		522	Total/NA

Client Sample ID: MW-12-05R_052024 — Lab Sample ID: 240-205186-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	0.71		0.20	0.092	ug/L	1		522	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-205186-1

Client Sample ID: MW-19-118D_052024

Date Collected: 05/20/24 12:05
Date Received: 05/24/24 09:40

Lab Sample ID: 240-205186-1

Matrix: Water

Method: EPA 522 - 1,4 Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.20	U	0.20	0.092	ug/L		06/05/24 13:30	06/06/24 14:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*98*		*46 - 130*	*06/05/24 13:30*	*06/06/24 14:41*	*1*

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-205186-1

Client Sample ID: MW-19-125_052024
Date Collected: 05/20/24 13:40
Date Received: 05/24/24 09:40

Lab Sample ID: 240-205186-2
Matrix: Water

Method: EPA 522 - 1,4 Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.20		0.20	0.092	ug/L		06/05/24 13:30	06/06/24 14:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*92*		*46 - 130*	*06/05/24 13:30*	*06/06/24 14:55*	*1*

Client Sample Results

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-205186-1

Client Sample ID: MW-13-44_052024

Date Collected: 05/20/24 15:40
Date Received: 05/24/24 09:40

Lab Sample ID: 240-205186-3

Matrix: Water

Method: EPA 522 - 1,4 Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	3.6		0.20	0.092	ug/L		06/05/24 13:30	06/06/24 15:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*97*		*46 - 130*	*06/05/24 13:30*	*06/06/24 15:36*	*1*

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-205186-1

Client Sample ID: MW-12-05R_052024
Date Collected: 05/20/24 16:45
Date Received: 05/24/24 09:40

Lab Sample ID: 240-205186-4
Matrix: Water

Method: EPA 522 - 1,4 Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.71		0.20	0.092	ug/L		06/10/24 12:31	06/11/24 16:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*77*		*46 - 130*	*06/10/24 12:31*	*06/11/24 16:35*	*1*

Surrogate Summary

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-205186-1

Method: 522 - 1,4 Dioxane (GC/MS SIM)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)								
		DXE								
Lab Sample ID	Client Sample ID	(46-130)								
240-205186-1	MW-19-118D_052024	98								
240-205186-2	MW-19-125_052024	92								
240-205186-2 MS	MW-19-125_052024	92								
240-205186-2 MSD	MW-19-125_052024	99								
240-205186-3	MW-13-44_052024	97								
240-205186-4	MW-12-05R_052024	77								
LCS 200-204911/2-A	Lab Control Sample	89								
LCS 200-205066/2-A	Lab Control Sample	92								
MB 200-204911/1-A	Method Blank	94								
MB 200-205066/1-A	Method Blank	89								

Surrogate Legend

DXE = 1,4-Dioxane-d8 (Surr)

Method: 522 - 1,4 Dioxane (GC/MS SIM)

Lab Sample ID: MB 200-204911/1-A
Matrix: Water
Analysis Batch: 204965

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 204911

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.20	U	0.20	0.092	ug/L		06/05/24 13:30	06/06/24 14:28	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*94*		*46 - 130*	*06/05/24 13:30*	*06/06/24 14:28*	*1*

Lab Sample ID: LCS 200-204911/2-A
Matrix: Water
Analysis Batch: 204965

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 204911

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,4-Dioxane	2.00	1.91		ug/L		96	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,4-Dioxane-d8 (Surr)	*89*		*46 - 130*

Lab Sample ID: 240-205186-2 MS
Matrix: Water
Analysis Batch: 204965

Client Sample ID: MW-19-125_052024
Prep Type: Total/NA
Prep Batch: 204911

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1,4-Dioxane	0.20		2.00	2.23		ug/L		101	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,4-Dioxane-d8 (Surr)	*92*		*46 - 130*

Lab Sample ID: 240-205186-2 MSD
Matrix: Water
Analysis Batch: 204965

Client Sample ID: MW-19-125_052024
Prep Type: Total/NA
Prep Batch: 204911

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,4-Dioxane	0.20		2.00	2.16		ug/L		98	70 - 130	3	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,4-Dioxane-d8 (Surr)	*99*		*46 - 130*

Lab Sample ID: MB 200-205066/1-A
Matrix: Water
Analysis Batch: 205162

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 205066

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.20	U	0.20	0.092	ug/L		06/10/24 12:31	06/11/24 15:54	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*89*		*46 - 130*	*06/10/24 12:31*	*06/11/24 15:54*	*1*

Method: 522 - 1,4 Dioxane (GC/MS SIM) (Continued)

Lab Sample ID: LCS 200-205066/2-A
Matrix: Water
Analysis Batch: 205162

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 205066

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
1,4-Dioxane			2.00	1.90		ug/L		95	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,4-Dioxane-d8 (Surr)	*92*		*46 - 130*

QC Association Summary

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-205186-1

GC/MS Semi VOA

Prep Batch: 204911

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-205186-1	MW-19-118D_052024	Total/NA	Water	522	
240-205186-2	MW-19-125_052024	Total/NA	Water	522	
240-205186-3	MW-13-44_052024	Total/NA	Water	522	
MB 200-204911/1-A	Method Blank	Total/NA	Water	522	
LCS 200-204911/2-A	Lab Control Sample	Total/NA	Water	522	
240-205186-2 MS	MW-19-125_052024	Total/NA	Water	522	
240-205186-2 MSD	MW-19-125_052024	Total/NA	Water	522	

Analysis Batch: 204965

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-205186-1	MW-19-118D_052024	Total/NA	Water	522	204911
240-205186-2	MW-19-125_052024	Total/NA	Water	522	204911
240-205186-3	MW-13-44_052024	Total/NA	Water	522	204911
MB 200-204911/1-A	Method Blank	Total/NA	Water	522	204911
LCS 200-204911/2-A	Lab Control Sample	Total/NA	Water	522	204911
240-205186-2 MS	MW-19-125_052024	Total/NA	Water	522	204911
240-205186-2 MSD	MW-19-125_052024	Total/NA	Water	522	204911

Prep Batch: 205066

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-205186-4	MW-12-05R_052024	Total/NA	Water	522	
MB 200-205066/1-A	Method Blank	Total/NA	Water	522	
LCS 200-205066/2-A	Lab Control Sample	Total/NA	Water	522	

Analysis Batch: 205162

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-205186-4	MW-12-05R_052024	Total/NA	Water	522	205066
MB 200-205066/1-A	Method Blank	Total/NA	Water	522	205066
LCS 200-205066/2-A	Lab Control Sample	Total/NA	Water	522	205066

Lab Chronicle

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-205186-1

Client Sample ID: MW-19-118D_052024
Lab Sample ID: 240-205186-1
Date Collected: 05/20/24 12:05
Matrix: Water
Date Received: 05/24/24 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	522			204911	KP	EET BUR	06/05/24 13:30
Total/NA	Analysis	522		1	204965	K1P	EET BUR	06/06/24 14:41

Client Sample ID: MW-19-125_052024
Lab Sample ID: 240-205186-2
Date Collected: 05/20/24 13:40
Matrix: Water
Date Received: 05/24/24 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	522			204911	KP	EET BUR	06/05/24 13:30
Total/NA	Analysis	522		1	204965	K1P	EET BUR	06/06/24 14:55

Client Sample ID: MW-13-44_052024
Lab Sample ID: 240-205186-3
Date Collected: 05/20/24 15:40
Matrix: Water
Date Received: 05/24/24 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	522			204911	KP	EET BUR	06/05/24 13:30
Total/NA	Analysis	522		1	204965	K1P	EET BUR	06/06/24 15:36

Client Sample ID: MW-12-05R_052024
Lab Sample ID: 240-205186-4
Date Collected: 05/20/24 16:45
Matrix: Water
Date Received: 05/24/24 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	522			205066	KP	EET BUR	06/10/24 12:31
Total/NA	Analysis	522		1	205162	A1B	EET BUR	06/11/24 16:35

Laboratory References:

EET BUR = Eurofins Burlington, 530 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Accreditation/Certification Summary

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-205186-1

Laboratory: Eurofins Burlington

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
ANAB	Dept. of Defense ELAP	L2336	02-25-26
Connecticut	State	PH-0751	09-30-25
DE Haz. Subst. Cleanup Act (HSCA)	State	N/A	05-19-25
Florida	NELAP	E87467	06-30-24
Minnesota	NELAP	050-999-436	12-31-24
New Hampshire	NELAP	2006	12-18-24
New Jersey	NELAP	VT972	06-30-24
New York	NELAP	10391	03-31-25
Pennsylvania	NELAP	68-00489	04-30-25
Rhode Island	State	LAO00298	12-31-24
US Fish & Wildlife	US Federal Programs	058448	07-31-24
USDA	US Federal Programs	P330-17-00272	12-19-26
Vermont	State	VT4000	02-10-25
Virginia	NELAP	460209	12-14-24
Wisconsin	State	399140830	08-31-24

Eurofins Cleveland
180 S. Van Buren Avenue
Barberton, OH 44203
Phone: 330-497-9396 Fax: 330-497-0772

Plant 2

Chain of Custody Record

eurofins | Environment Testing

Client Information	Sampler: Donald Richmond	Lab PM: DelMonico, Michael	Carrier Tracking No(s):	COC No: 240-120314-41995.1
Client Contact: ~~Alex Villhauer~~ Kaitlyn.Hunt@arcadis.com	Phone: 248 464 4877	E-Mail: Michael.DelMonico@et.eurofinsus.com	State of Origin:	Page: Page 1 of 1
Company: Arcadis U.S., Inc.	PWSID:			Job #:
Address: ~~28550 Cabot Drive, Suite 500 120 N. Washington Square Suite 300 (3rd Floor)~~	Due Date Requested:			
City: ~~Lansing~~ Novi	TAT Requested (days): Standard TAT			
State, Zip: MI, ~~48933~~ 48377	Complianco Project: Δ Yes Δ No			
Phone: ~~810-225-4928(Tel)~~ 947-777-5215	PO #: Purchase Order not required			
Email: Kaitlyn.Hunt@arcadis.com ~~alex.villhauer@arcadis.com~~	WO #: 30214036-04704 Project #: ~~B0004607.2016.00001~~			
Project Name: Racer Lansing method 522	Project #: 24017406			
Site:	SSOW#:			

Analysis Requested

Preservation Codes: A - HCL

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	522 - 522- 1,4-Dioxane	522 - Local Method	Total Number of containers	Special Instructions/Note:
Preservation Code:							A	A		
MW-19-118D_052024	5/20/24	1205	G	Water	N	N				
MW-19-125_052024	5/20/24	1340	G	Water	N	N				
MW-13-44_052024	5/20/24	1540	G	Water	N	N				
MW-12-05R_052024	5/20/24	1645	G	Water	N	N				
				Water						
				Water						
				Water						
				Water						
				Water						
				Water						
				Water						

240-205186 Chain of Custody

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	Austin Westhuis	5/23/24 1020	Arcadis	FedEx	5/23/24 1020	FedEx
2				Rochelle Nance	5/24/24 940	ET NL
3						

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

Eurofins – Cleveland Sample Receipt Form/Narrative Login # _____
Barberton Facility

Client Arcadis Site Name _____ Cooler unpacked by: RACHELLE HAIDET

Cooler Received on 5-24 24 Opened on 5 24 24

FedEx: 1st Grd (Exp) UPS FAS Waypoint Client Drop Off Eurofins Courier Other _____

Receipt After-hours Drop-off Date/Time _____ Storage Location _____

Eurofins Cooler # EC Foam Box Client Cooler Box Other _____

Packing material used: (Bubble Wrap) Foam (Plastic Bag) None Other _____

COOLANT: (Wet Ice) Blue Ice Dry Ice Water None

1 Cooler temperature upon receipt ☐ See Multiple Cooler Form

IR GUN # 17 (CF +0.2 °C) Observed Cooler Temp 1.1 °C Corrected Cooler Temp 1.3 °C

2	Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1	(Yes) No
	-Were the seals on the outside of the cooler(s) signed & dated?	(Yes) No NA
	-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes (No)
	-Were tamper/custody seals intact and uncompromised?	(Yes) No NA
3	Shippers' packing slip attached to the cooler(s)?	(Yes) No
4	Did custody papers accompany the sample(s)?	(Yes) No
5	Were the custody papers relinquished & signed in the appropriate place?	(Yes) No
6	Was/were the person(s) who collected the samples clearly identified on the COC?	(Yes) No
7	Did all bottles arrive in good condition (Unbroken)?	(Yes) No
8	Could all bottle labels (ID/Date/Time) be reconciled with the COC?	Yes No
9	For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)?	
10	Were correct bottle(s) used for the test(s) indicated?	(Yes) No
11	Sufficient quantity received to perform indicated analyses?	(Yes) No
12	Are these work share samples and all listed on the COC?	Yes (No)
	If yes, Questions 13-17 have been checked at the originating laboratory	
13	Were all preserved sample(s) at the correct pH upon receipt?	Yes No (NA) pH Strip Lot# HC439975
14	Were VOAs on the COC?	Yes (No)
15	Were air bubbles >6 mm in any VOA vials? ● ← Larger than this.	Yes No (NA)
16	Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____	Yes (No)
17	Was a LL Hg or Me Hg trip blank present? _____	Yes (No)

Tests that are not checked for pH by Receiving

VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

18 CHAIN OF CUSTODY & SAMPLE DISCREPANCIES ☐ additional next page | Samples processed by

Received Dup-10 2x Amber 250's not on COC

19. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.

Sample(s) _____ were received in a broken container

Sample(s) _____ were received with bubble >6 mm in diameter (Notify PM)

20. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory

Time preserved _____ Preservative(s) added/Lot number(s) _____

VOA Sample Preservation - Date/Time VOAs Frozen _____

5/24/2024

Login Container Summary Report

240-205186

6/12/2024

Temperature readings _____

Client Sample ID	Lab ID	Container Type	Container pH	Container Temp	Preservation Added	Preservation Lot Number
MW-19-118D-052024	240-205186-A-1	Amber Glass 250mL - hydrochloric acid				
MW-19-118D-052024	240-205186-B-1	Amber Glass 250mL - hydrochloric acid				
MW-19-125-052024	240-205186-A-2	Amber Glass 250mL - hydrochloric acid				
MW-19-125-052024	240-205186-A-2 MS	Amber Glass 250mL - hydrochloric acid				
MW-19-125-052024	240-205186-A-2 MSD	Amber Glass 250mL - hydrochloric acid				
MW-19-125-052024	240-205186-B-2	Amber Glass 250mL - hydrochloric acid				
MW-19-125-052024	240-205186-B-2 MS	Amber Glass 250mL - hydrochloric acid				
MW-19-125-052024	240-205186-B-2 MSD	Amber Glass 250mL - hydrochloric acid				
MW-13-44-052024	240-205186-A-3	Amber Glass 250mL - hydrochloric acid				
MW-13-44-052024	240-205186-B-3	Amber Glass 250mL - hydrochloric acid				
MW-12-05R-052024	240-205186-A-4	Amber Glass 250mL - hydrochloric acid				
MW-12-05R-052024	240-205186-B-4	Amber Glass 250mL - hydrochloric acid				

Eurofins Cleveland
180 S. Van Buren Avenue
Barberton, OH 44203
Phone: 330-497-9396 Fax: 330-497-0772

Chain of Custody Record

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Client Information (Sub Contract Lab)	Sampler:	Lab PM: DelMonico, Michael	Carrier Tracking No(s):	COC No.: 240-185388.1
Client Contact: Shipping/Receiving	Phone	E-Mail: Michael.DelMonico@et.eurofinsus.com	State of Origin: Michigan	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note)		Job #: 240-205186-1
Address: 530 Community Drive, Suite 11,	Due Date Requested: 6/11/2024			Preservation Codes: -
City: South Burlington	TAT Requested (days):			
State, Zip: VT, 05403				
Phone: 802-660-1990(Tel) 802-660-1919(Fax)	PO #:			
Email:	WO #:			
Project Name: Racer Lansing	Project #: 24017406			
Site:	SSOW#:			Other:

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	522/522_CWA_Prep	Total Number of containers	Special Instructions/Note:
		Preservation Code:							
MW-19-118D_052024 (240-205186-1)	5/20/24	12:05 Eastern		Water			X	2	
MW-19-125_052024 (240-205186-2)	5/20/24	13:40 Eastern		Water			X	2	
MW-19-125_052024 (240-205186-2MS)	5/20/24	13:40 Eastern	MS	Water			X	2	
MW-19-125_052024 (240-205186-2MSD)	5/20/24	13:40 Eastern	MSD	Water			X	2	
MW-13-44_052024 (240-205186-3)	5/20/24	15:40 Eastern		Water			X	2	
MW-12-05R_052024 (240-205186-4)	5/20/24	16.45 Eastern		Water			X	2	
MW-10-_052024 (240-205186-5)	5/20/24	Eastern		Water			X	2	

240-205186 Chain of Custody

onment Testing North Central, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories This sample shipment is forwarded under chain-of-custody If the sted above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing North Central, LLC laboratory or other instructions will be provided Any changes to rth Central, LLC attention immediately If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing North Central, LLC

Uncontirmed

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
[signature]	52924 950	~~EETNC~~	Luca Silva	5-29-24 1030	ETA Burl
Relinquished by:	Date/Time:	Company	Received by:	Date/Time	Company
Relinquished by:	Date/Time	Company	Received by:	Date/Time.	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks.

Ver: 04/02/2024



ORIGIN ID:CAKA (330) 312-0176
LANCE HERSHMAN
EUROFINS TESTAMERICA BARBERTON
180 S VAN BUREN

BARBERTON, OH 44203
UNITED STATES US

SHIP DATE: 28MAY24
ACTWGT: 60.00 LB MAN
CAD: 0792304/CAFE3808

BILL SENDER

TO SHIPPING/RECEIVING
TESTAMERICA LABORATORIES, INC.
530 COMMUNITY DRIVE
SUITE 11
SOUTH BURLINGTON VT 05403
(802) 660-1990 REF: 8240-121088
PO: YES

FedEx Express

J241023112201uv

2 of 2
MPS# 0263 7415 6787 8046
Mstr# 7415 6787 8035 0201

WED - 29 MAY 10:30A
PRIORITY OVERNIGHT

NX BTVA

05403
VT-US BTV



ORIGIN ID:CAKA (330) 312-0176
LANCE HERSHMAN
EUROFINS TESTAMERICA BARBERTON
180 S VAN BUREN

BARBERTON, OH 44203
UNITED STATES US

SHIP DATE: 28MAY24
ACTWGT: 60.00 LB MAN
CAD: 0792304/CAFE3808

BILL SENDER

TO SHIPPING/RECEIVING
TESTAMERICA LABORATORIES, INC.
530 COMMUNITY DRIVE
SUITE 11
SOUTH BURLINGTON VT 05403
(802) 660-1990 REF: 8240-121088
PO: YES

FedEx Express

J241023112201uv

1 of 2
TRK# 0201 7415 6787 8035
MASTER

WED - 29 MAY 10:30A
PRIORITY OVERNIGHT

NX BTVA

05403
VT-US BTV

Login Sample Receipt Checklist

Client: Arcadis U.S., Inc.

Job Number: 240-205186-1

Login Number: 205186
List Number: 2
Creator: Lavigne, Scott M

List Source: Eurofins Burlington
List Creation: 05/29/24 01:57 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	Not present
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.4ºC, 1.0ºC
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	N/A	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Tiffany Linder
Arcadis U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

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JOB DESCRIPTION

Racer Lansing

JOB NUMBER

240-205189-1

Eurofins Cleveland
180 S. Van Buren Avenue
Barberton OH 44203

See page two for job notes and contact information.

my EOL

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

Authorization



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Authorized for release by
Michael DelMonico, Project Manager I
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Definitions/Glossary

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-205189-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job Narrative
240-205189-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 5/24/2024 9:40 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.3°C.

GC/MS Semi VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Method Summary

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-205189-1

Method	Method Description	Protocol	Laboratory
522	1,4 Dioxane (GC/MS SIM)	EPA	EET BUR
522	Solid-Phase Extraction (SPE)	EPA	EET BUR

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

EET BUR = Eurofins Burlington, 530 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Sample Summary

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-205189-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-205189-1	MW-91-5_052024	Water	05/20/24 10:00	05/24/24 09:40
240-205189-2	MW-19-119D_052024	Water	05/20/24 11:00	05/24/24 09:40
240-205189-3	MW-19-119S_052024	Water	05/20/24 13:00	05/24/24 09:40
240-205189-4	MW-13-28_052024	Water	05/20/24 14:30	05/24/24 09:40
240-205189-5	MW-13-37_052024	Water	05/20/24 16:45	05/24/24 09:40
240-205189-6	DUP-10_052024	Water	05/20/24 00:00	05/24/24 09:40

Detection Summary

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-205189-1

Client Sample ID: MW-91-5_052024 — Lab Sample ID: 240-205189-1

No Detections.

Client Sample ID: MW-19-119D_052024 — Lab Sample ID: 240-205189-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	0.40		0.20	0.092	ug/L	1		522	Total/NA

Client Sample ID: MW-19-119S_052024 — Lab Sample ID: 240-205189-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	0.41		0.20	0.092	ug/L	1		522	Total/NA

Client Sample ID: MW-13-28_052024 — Lab Sample ID: 240-205189-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	4.0		0.20	0.092	ug/L	1		522	Total/NA

Client Sample ID: MW-13-37_052024 — Lab Sample ID: 240-205189-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	0.41		0.20	0.092	ug/L	1		522	Total/NA

Client Sample ID: DUP-10_052024 — Lab Sample ID: 240-205189-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	0.37		0.20	0.092	ug/L	1		522	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-205189-1

Client Sample ID: MW-91-5_052024

Date Collected: 05/20/24 10:00
Date Received: 05/24/24 09:40

Lab Sample ID: 240-205189-1

Matrix: Water

Method: EPA 522 - 1,4 Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.20	U	0.20	0.092	ug/L		06/10/24 12:31	06/11/24 16:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*79*		*46 - 130*	*06/10/24 12:31*	*06/11/24 16:48*	*1*

Client Sample Results

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-205189-1

Client Sample ID: MW-19-119D_052024

Date Collected: 05/20/24 11:00
Date Received: 05/24/24 09:40

Lab Sample ID: 240-205189-2

Matrix: Water

Method: EPA 522 - 1,4 Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.40		0.20	0.092	ug/L		06/10/24 12:31	06/11/24 17:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*79*		*46 - 130*	*06/10/24 12:31*	*06/11/24 17:02*	*1*

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-205189-1

Client Sample ID: MW-19-119S_052024
Date Collected: 05/20/24 13:00
Date Received: 05/24/24 09:40

Lab Sample ID: 240-205189-3
Matrix: Water

Method: EPA 522 - 1,4 Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.41		0.20	0.092	ug/L		06/10/24 12:31	06/11/24 17:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*96*		*46 - 130*	*06/10/24 12:31*	*06/11/24 17:15*	*1*

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-205189-1

Client Sample ID: MW-13-28_052024
Date Collected: 05/20/24 14:30
Date Received: 05/24/24 09:40

Lab Sample ID: 240-205189-4
Matrix: Water

Method: EPA 522 - 1,4 Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	4.0		0.20	0.092	ug/L		06/10/24 12:31	06/11/24 17:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*80*		*46 - 130*	*06/10/24 12:31*	*06/11/24 17:29*	*1*

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-205189-1

Client Sample ID: MW-13-37_052024
Date Collected: 05/20/24 16:45
Date Received: 05/24/24 09:40

Lab Sample ID: 240-205189-5
Matrix: Water

Method: EPA 522 - 1,4 Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.41		0.20	0.092	ug/L		06/10/24 12:31	06/11/24 17:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*91*		*46 - 130*	*06/10/24 12:31*	*06/11/24 17:43*	*1*

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-205189-1

Client Sample ID: DUP-10_052024

Date Collected: 05/20/24 00:00
Date Received: 05/24/24 09:40

Lab Sample ID: 240-205189-6

Matrix: Water

Method: EPA 522 - 1,4 Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.37		0.20	0.092	ug/L		06/11/24 11:00	06/12/24 17:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*87*		*46 - 130*	*06/11/24 11:00*	*06/12/24 17:55*	*1*

Surrogate Summary

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-205189-1

Method: 522 - 1,4 Dioxane (GC/MS SIM)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)								
		DXE								
Lab Sample ID	Client Sample ID	(46-130)								
240-205189-1	MW-91-5_052024	79								
240-205189-2	MW-19-119D_052024	79								
240-205189-3	MW-19-119S_052024	96								
240-205189-4	MW-13-28_052024	80								
240-205189-5	MW-13-37_052024	91								
240-205189-6	DUP-10_052024	87								
LCS 200-205066/2-A	Lab Control Sample	92								
LCS 200-205134/2-A	Lab Control Sample	105								
MB 200-205066/1-A	Method Blank	89								
MB 200-205134/1-A	Method Blank	106								

Surrogate Legend

DXE = 1,4-Dioxane-d8 (Surr)

Method: 522 - 1,4 Dioxane (GC/MS SIM)

Lab Sample ID: MB 200-205066/1-A
Matrix: Water
Analysis Batch: 205162

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 205066

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.20	U	0.20	0.092	ug/L		06/10/24 12:31	06/11/24 15:54	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*89*		*46 - 130*	*06/10/24 12:31*	*06/11/24 15:54*	*1*

Lab Sample ID: LCS 200-205066/2-A
Matrix: Water
Analysis Batch: 205162

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 205066

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,4-Dioxane	2.00	1.90		ug/L		95	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,4-Dioxane-d8 (Surr)	*92*		*46 - 130*

Lab Sample ID: MB 200-205134/1-A
Matrix: Water
Analysis Batch: 205200

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 205134

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.20	U	0.20	0.092	ug/L		06/11/24 11:00	06/12/24 16:20	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*106*		*46 - 130*	*06/11/24 11:00*	*06/12/24 16:20*	*1*

Lab Sample ID: LCS 200-205134/2-A
Matrix: Water
Analysis Batch: 205200

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 205134

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,4-Dioxane	8.00	8.74		ug/L		109	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,4-Dioxane-d8 (Surr)	*105*		*46 - 130*

QC Association Summary

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-205189-1

GC/MS Semi VOA

Prep Batch: 205066

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-205189-1	MW-91-5_052024	Total/NA	Water	522	
240-205189-2	MW-19-119D_052024	Total/NA	Water	522	
240-205189-3	MW-19-119S_052024	Total/NA	Water	522	
240-205189-4	MW-13-28_052024	Total/NA	Water	522	
240-205189-5	MW-13-37_052024	Total/NA	Water	522	
MB 200-205066/1-A	Method Blank	Total/NA	Water	522	
LCS 200-205066/2-A	Lab Control Sample	Total/NA	Water	522	

Prep Batch: 205134

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-205189-6	DUP-10_052024	Total/NA	Water	522	
MB 200-205134/1-A	Method Blank	Total/NA	Water	522	
LCS 200-205134/2-A	Lab Control Sample	Total/NA	Water	522	

Analysis Batch: 205162

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-205189-1	MW-91-5_052024	Total/NA	Water	522	205066
240-205189-2	MW-19-119D_052024	Total/NA	Water	522	205066
240-205189-3	MW-19-119S_052024	Total/NA	Water	522	205066
240-205189-4	MW-13-28_052024	Total/NA	Water	522	205066
240-205189-5	MW-13-37_052024	Total/NA	Water	522	205066
MB 200-205066/1-A	Method Blank	Total/NA	Water	522	205066
LCS 200-205066/2-A	Lab Control Sample	Total/NA	Water	522	205066

Analysis Batch: 205200

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-205189-6	DUP-10_052024	Total/NA	Water	522	205134
MB 200-205134/1-A	Method Blank	Total/NA	Water	522	205134
LCS 200-205134/2-A	Lab Control Sample	Total/NA	Water	522	205134

Lab Chronicle

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-205189-1

Client Sample ID: MW-91-5_052024
Lab Sample ID: 240-205189-1
Date Collected: 05/20/24 10:00
Matrix: Water
Date Received: 05/24/24 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	522			205066	KP	EET BUR	06/10/24 12:31
Total/NA	Analysis	522		1	205162	A1B	EET BUR	06/11/24 16:48

Client Sample ID: MW-19-119D_052024
Lab Sample ID: 240-205189-2
Date Collected: 05/20/24 11:00
Matrix: Water
Date Received: 05/24/24 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	522			205066	KP	EET BUR	06/10/24 12:31
Total/NA	Analysis	522		1	205162	A1B	EET BUR	06/11/24 17:02

Client Sample ID: MW-19-119S_052024
Lab Sample ID: 240-205189-3
Date Collected: 05/20/24 13:00
Matrix: Water
Date Received: 05/24/24 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	522			205066	KP	EET BUR	06/10/24 12:31
Total/NA	Analysis	522		1	205162	A1B	EET BUR	06/11/24 17:15

Client Sample ID: MW-13-28_052024
Lab Sample ID: 240-205189-4
Date Collected: 05/20/24 14:30
Matrix: Water
Date Received: 05/24/24 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	522			205066	KP	EET BUR	06/10/24 12:31
Total/NA	Analysis	522		1	205162	A1B	EET BUR	06/11/24 17:29

Client Sample ID: MW-13-37_052024
Lab Sample ID: 240-205189-5
Date Collected: 05/20/24 16:45
Matrix: Water
Date Received: 05/24/24 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	522			205066	KP	EET BUR	06/10/24 12:31
Total/NA	Analysis	522		1	205162	A1B	EET BUR	06/11/24 17:43

Client Sample ID: DUP-10_052024
Lab Sample ID: 240-205189-6
Date Collected: 05/20/24 00:00
Matrix: Water
Date Received: 05/24/24 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	522			205134	MJW	EET BUR	06/11/24 11:00
Total/NA	Analysis	522		1	205200	A1B	EET BUR	06/12/24 17:55

Laboratory References:
EET BUR = Eurofins Burlington, 530 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Accreditation/Certification Summary

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-205189-1

Laboratory: Eurofins Burlington

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
ANAB	Dept. of Defense ELAP	L2336	02-25-26
Connecticut	State	PH-0751	09-30-25
DE Haz. Subst. Cleanup Act (HSCA)	State	N/A	05-19-25
Florida	NELAP	E87467	06-30-24
Minnesota	NELAP	050-999-436	12-31-24
New Hampshire	NELAP	2006	12-18-24
New Jersey	NELAP	VT972	06-30-24
New York	NELAP	10391	03-31-25
Pennsylvania	NELAP	68-00489	04-30-25
Rhode Island	State	LAO00298	12-31-24
US Fish & Wildlife	US Federal Programs	058448	07-31-24
USDA	US Federal Programs	P330-17-00272	12-19-26
Vermont	State	VT4000	02-10-25
Virginia	NELAP	460209	12-14-24
Wisconsin	State	399140830	08-31-24

Eurofins Cleveland
180 S. Van Buren Avenue
Barberton, OH 44203
Phone: 330-497-9396 Fax: 330-497-0772

Plant 3

Chain of Custody Record

1/3

eurofins | Environment Testing

Client Information	Sampler: Bill Cobern	Lab PM: DelMonico, Michael	Carrier Tracking No(s):	COC No: 240-120314-41995.2
Client Contact: ~~Alex Villhauer~~ Kaitlyn.Hunt@arcadis.com	Phone: 810-588-3642	E-Mail: Michael.DelMonico@et.eurofinsus.com	State of Origin:	Page: Page 1 of 1
Company: Arcadis U.S., Inc.	PWSID:			Job #:
Address: ~~28550 Cabot Drive, Suite 500 120 N. Washington Square Suite 300 (3rd Floor)~~	Due Date Requested:			
City: ~~Lansing~~ Novi	TAT Requested (days): Standard TAT			
State, Zip: MI, ~~48933~~ 48377	Compliance Project: Δ Yes Δ No			
Phone: ~~810-225-1928(Tel)~~ 947-777-5215	PO #: Purchase Order not required			
Email: Kaitlyn.Hunt@arcadis.com ~~alex.villhauer@arcadis.com~~	WO #: 30214036.04704 Project #: ~~B0064607.2016.00001~~			
Project Name: Racer Lansing method 522	Project #: 24017406			
Site:	SSOW#:			

Analysis Requested

Preservation Codes: A - HCL

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	522 - 522- 1,4-Dioxane	522 - Local Method	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	A		
MW-91-5_052024	5/20/24	1000	G	Water	N	N				
MW-19-119D_052024	5/20/24	1100	G	Water	N	N				
MW-19-119S_052024	5/20/24	1300	G	Water	N	N				
MW-13-28_052024	5/20/24	1430	G	Water	N	N				
MW-13-37_052024	5/20/24	1645	G	Water	N	N				
				Water						
				Water						
				Water						
				Water						
				Water						
				Water						

240-205189 Chain of Custody

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Austin Westhuis	5/23/24 1020	Arcadis	FedEx	5/23/24 1020	FedEx
Relinquished by:	Date/Time:	Company	Received by: Rachele Hanes	Date/Time: 52424 940	Company EETMC
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Eurofins – Cleveland Sample Receipt Form/Narrative Login # .
Barberton Facility

Client Arcadis Site Name

Cooler unpacked by: RACHELLE HAIDET

Cooler Received on 5-24 24 Opened on 5 24 24

FedEx: 1st Grd (Exp) UPS FAS Waypoint Client Drop Off Eurofins Courier Other

Receipt After-hours Drop-off Date/Time Storage Location

Eurofins Cooler # EC Foam Box Client Cooler Box Other

Packing material used: (Bubble Wrap) Foam (Plastic Bag) None Other

COOLANT: (Wet Ice) Blue Ice Dry Ice Water None

1 Cooler temperature upon receipt ☐ See Multiple Cooler Form

IR GUN # 17 (CF +0.2 °C) Observed Cooler Temp 1.1 °C Corrected Cooler Temp. 1.3 °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1	(Yes) No	Tests that are not checked for pH by Receiving: VOAs, Oil and Grease, TOC
-Were the seals on the outside of the cooler(s) signed & dated?	(Yes) No NA	
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes (No)	
-Were tamper/custody seals intact and uncompromised?	(Yes) No NA	
3 Shippers' packing slip attached to the cooler(s)?	(Yes) No	
4 Did custody papers accompany the sample(s)?	(Yes) No	
5 Were the custody papers relinquished & signed in the appropriate place?	(Yes) No	
6 Was/were the person(s) who collected the samples clearly identified on the COC?	(Yes) No	
7 Did all bottles arrive in good condition (Unbroken)?	(Yes) No	
8 Could all bottle labels (ID/Date/Time) be reconciled with the COC?	Yes No	
9 For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)?		
10 Were correct bottle(s) used for the test(s) indicated?	(Yes) No	
11 Sufficient quantity received to perform indicated analyses?	(Yes) No	
12. Are these work share samples and all listed on the COC?	Yes (No)	
If yes, Questions 13-17 have been checked at the originating laboratory		
13 Were all preserved sample(s) at the correct pH upon receipt?	Yes No (NA)	pH Strip Lot# HC439975
14 Were VOAs on the COC?	Yes (No)	
15 Were air bubbles >6 mm in any VOA vials? ● ← Larger than this	Yes No (NA)	
16 Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #	Yes (No)	
17 Was a LL Hg or Me Hg trip blank present?	Yes (No)	

Contacted PM Date by via Verbal Voice Mail Other

Concerning

18 CHAIN OF CUSTODY & SAMPLE DISCREPANCIES ☐ additional next page

Samples processed by

19 SAMPLE CONDITION

Sample(s) were received after the recommended holding time had expired.

Sample(s) were received in a broken container

Sample(s) were received with bubble >6 mm in diameter (Notify PM)

20. SAMPLE PRESERVATION

Sample(s) were further preserved in the laboratory

Time preserved Preservative(s) added/Lot number(s):

VOA Sample Preservation - Date/Time VOAs Frozen.

5/24/2024

Login Container Summary Report

240-205189

6/13/2024

Temperature readings _____

Client Sample ID	Lab ID	Container Type	Container pH	Container Temp	Preservation Added	Preservation Lot Number
MW-91-5-052024	240-205189-A-1	Amber Glass 250mL - hydrochloric acid				
MW-91-5-052024	240-205189-B-1	Amber Glass 250mL - hydrochloric acid				
MW-19-119O-052024	240-205189-A-2	Amber Glass 250mL - hydrochloric acid				
MW-19-119O-052024	240-205189-B-2	Amber Glass 250mL - hydrochloric acid				
MW-19-119S-052024	240-205189-A-3	Amber Glass 250mL - hydrochloric acid				
MW-19-119S-052024	240-205189-B-3	Amber Glass 250mL - hydrochloric acid				
MW-13-28-052024	240-205189-A-4	Amber Glass 250mL - hydrochloric acid				
MW-13-28-052024	240-205189-B-4	Amber Glass 250mL - hydrochloric acid				
MW-13-37-052024	240-205189-A-5	Amber Glass 250mL - hydrochloric acid				
MW-13-37-052024	240-205189-B-5	Amber Glass 250mL - hydrochloric acid				



ORIGIN ID LANA (330) 497-9396
AUSTIN WESTHUIS
ARCADIS
28550 CABOT DR STE 500

NOVI, MI 48377
UNITED STATES US

SHIP DATE 23MAY24
ACTWGT 60.25 LB
CAD 6981534/SSFO2500
DIMS 24x14x13 IN

BILL THIRD PARTY

Part # 156297-435 RRDB2 EXP 02/25

TO EUROFINS CLEVELAND

180 S VAN BUREN AVE

BARBERTON OH 44203

(330) 497-9396 REF

INV:
PO: DEPT:

FedEx Express

FRI - 24 MAY 10:30A
PRIORITY OVERNIGHT

TRK# 0201 2750 2457 7911

NX CAKA

44203
OH-US CLE

240-205189 Waybill

Eurofins Cleveland
180 S. Van Buren Avenue
Barberton, OH 44203
Phone: 330-497-9396 Fax: 330-497-0772

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: DelMonico, Michael	Carrier Tracking No(s):	COC No: 240-185388.1
Client Contact: Shipping/Receiving	Phone	E-Mail: Michael.DelMonico@et.eurofinsus.com	State of Origin: Michigan	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 240-205189-1
Address: 530 Community Drive, Suite 11,	Due Date Requested: 6/11/2024			
City: South Burlington	TAT Requested (days):			
State, Zip: VT, 05403				
Phone: 802-660-1990(Tel) 802-660-1919(Fax)	PO #:			
Email:	WO #:			
Project Name: Racer Lansing	Project #: 24017406			
Site	SSOW#:			

Analysis Requested

Preservation Codes: -

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	522/522_CWA_Prep	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
MW-91-5-052024 (240-205189-1)	5/20/24	10.00 Eastern		Water			X	2	
MW-19-119O-052024 (240-205189-2)	5/20/24	11:00 Eastern		Water			X	2	
MW-19-119S-052024 (240-205189-3)	5/20/24	13:00 Eastern		Water			X	2	
MW-13-28-052024 (240-205189-4)	5/20/24	14:30 Eastern		Water			X	2	
MW-13-37-052024 (240-205189-5)	5/20/24	16:45 Eastern		Water			X	2	

240-205189 Chain of Custody

ironment Testing North Central, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody If the sted above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing North Central, LLC laboratory or other instructions will be provided Any changes to accreditation status should be brought to Eurofins Environment Testing North Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing North Central, LLC

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested. I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Michelle Norris	5/24 950	ETNC	Luca Silva	5/29/24 1030	ETA Burl
Relinquished by:	Date/Time	Company	Received by:	Date/Time.	Company
Relinquished by:	Date/Time.	Company	Received by:	Date/Time	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks.

Ver: 04/02/2024



ORIGIN ID:CAKA (330) 312-0176
LANCE HERSHMAN
EUROFINS TESTAMERICA BARBERTON
180 S VAN BUREN

BARBERTON, OH 44203
UNITED STATES US

SHIP DATE: 28MAY24
ACTWGT: 60.00 LB MAN
CAD: 0792304/CAFE3808

BILL SENDER

TO SHIPPING/RECEIVING
TESTAMERICA LABORATORIES, INC.
530 COMMUNITY DRIVE
SUITE 11
SOUTH BURLINGTON VT 05403
(802) 660-1990
PO: YES

REF: 8240-121088

FedEx Express

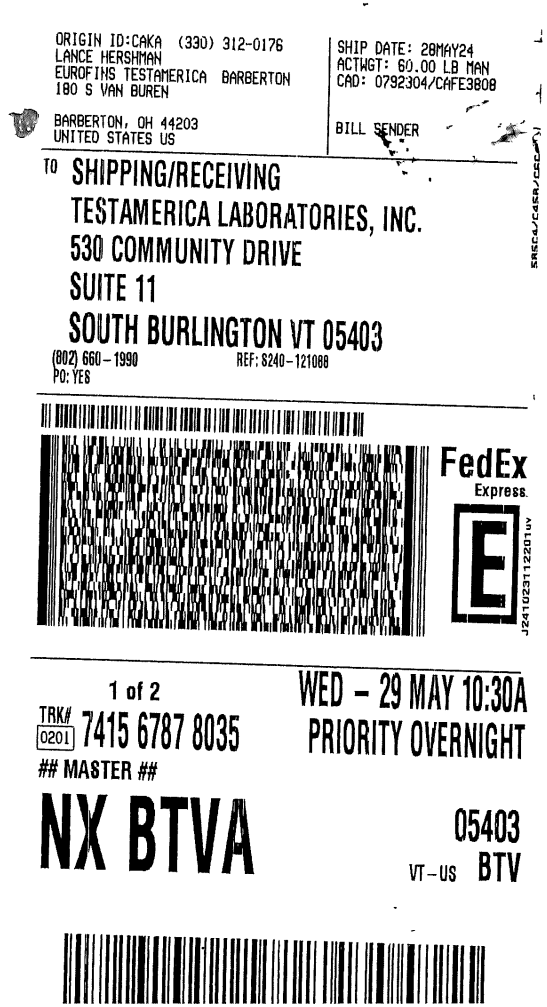
J241023112201uv

2 of 2
MPS# 0263 7415 6787 8046
Mstr# 7415 6787 8035 0201

WED - 29 MAY 10:30A
PRIORITY OVERNIGHT

NX BTVA

05403
VT-US BTV



ORIGIN ID:CAKA (330) 312-0176
LANCE HERSHMAN
EUROFINS TESTAMERICA BARBERTON
180 S VAN BUREN

BARBERTON, OH 44203
UNITED STATES US

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SOUTH BURLINGTON VT 05403
(802) 660-1990
PO: YES

REF: 8240-121088

FedEx Express

J241023112201uv

1 of 2
TRK# 0201 7415 6787 8035
MASTER

WED - 29 MAY 10:30A
PRIORITY OVERNIGHT

NX BTVA

05403
VT-US BTV

Login Sample Receipt Checklist

Client: Arcadis U.S., Inc.

Job Number: 240-205189-1

Login Number: 205189
List Number: 2
Creator: Lavigne, Scott M

List Source: Eurofins Burlington
List Creation: 05/29/24 02:10 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	Not present
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.4ºC, 1.0ºC
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	N/A	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Arcadis U.S., Inc.

Job Number: 240-205189-1

Login Number: 205189
List Number: 3
Creator: Khudaier, Zahraa

List Source: Eurofins Burlington
List Creation: 06/10/24 10:52 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

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ANALYTICAL REPORT

PREPARED FOR

Attn: Tiffany Linder
Arcadis U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Generated 6/13/2024 11:53:42 AM

JOB DESCRIPTION

Racer Lansing

JOB NUMBER

240-205252-1

Eurofins Cleveland
180 S. Van Buren Avenue
Barberton OH 44203

See page two for job notes and contact information.

my EOL

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

Authorization



Generated
6/13/2024 11:53:42 AM

Authorized for release by
Michael DelMonico, Project Manager I
Michael.DelMonico@et.eurofinsus.com
(330)497-9396

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Definitions/Glossary

Client: Arcadis U.S., Inc.
Job ID: 240-205252-1
Project/Site: Racer Lansing

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job Narrative
240-205252-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 5/25/2024 8:00 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.8°C.

GC/MS Semi VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Method Summary

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-205252-1

Method	Method Description	Protocol	Laboratory
522	1,4 Dioxane (GC/MS SIM)	EPA	EET BUR
522	Solid-Phase Extraction (SPE)	EPA	EET BUR

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

EET BUR = Eurofins Burlington, 530 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Sample Summary

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-205252-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-205252-1	MW-91-6_052424	Water	05/24/24 09:00	05/25/24 08:00
240-205252-2	MW-13-47_052424	Water	05/24/24 10:15	05/25/24 08:00
240-205252-3	MW-13-38_052424	Water	05/24/24 11:40	05/25/24 08:00

Detection Summary

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-205252-1

Client Sample ID: MW-91-6_052424 — Lab Sample ID: 240-205252-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	0.70		0.20	0.092	ug/L	1		522	Total/NA

Client Sample ID: MW-13-47_052424 — Lab Sample ID: 240-205252-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	1.2		0.20	0.092	ug/L	1		522	Total/NA

Client Sample ID: MW-13-38_052424 — Lab Sample ID: 240-205252-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	0.83		0.20	0.092	ug/L	1		522	Total/NA

This Detection Summary does not include radiochemical test results.

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-205252-1

Client Sample ID: MW-91-6_052424
Date Collected: 05/24/24 09:00
Date Received: 05/25/24 08:00

Lab Sample ID: 240-205252-1
Matrix: Water

Method: EPA 522 - 1,4 Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.70		0.20	0.092	ug/L		06/12/24 10:50	06/12/24 21:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*85*		*46 - 130*	*06/12/24 10:50*	*06/12/24 21:32*	*1*

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-205252-1

Client Sample ID: MW-13-47_052424
Date Collected: 05/24/24 10:15
Date Received: 05/25/24 08:00

Lab Sample ID: 240-205252-2
Matrix: Water

Method: EPA 522 - 1,4 Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	1.2		0.20	0.092	ug/L		06/12/24 10:50	06/12/24 21:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*79*		*46 - 130*	*06/12/24 10:50*	*06/12/24 21:46*	*1*

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-205252-1

Client Sample ID: MW-13-38_052424
Date Collected: 05/24/24 11:40
Date Received: 05/25/24 08:00

Lab Sample ID: 240-205252-3
Matrix: Water

Method: EPA 522 - 1,4 Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.83		0.20	0.092	ug/L		06/12/24 10:50	06/12/24 22:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*90*		*46 - 130*	*06/12/24 10:50*	*06/12/24 22:00*	*1*

Surrogate Summary

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-205252-1

Method: 522 - 1,4 Dioxane (GC/MS SIM)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)							
		DXE							
Lab Sample ID	Client Sample ID	(46-130)							
240-205252-1	MW-91-6_052424	85							
240-205252-2	MW-13-47_052424	79							
240-205252-3	MW-13-38_052424	90							
LLCS 200-205181/2-A	Lab Control Sample	104							
MB 200-205181/1-A	Method Blank	104							

Surrogate Legend

DXE = 1,4-Dioxane-d8 (Surr)

Method: 522 - 1,4 Dioxane (GC/MS SIM)

Lab Sample ID: MB 200-205181/1-A
Matrix: Water
Analysis Batch: 205200

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 205181

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.20	U	0.20	0.092	ug/L		06/12/24 10:50	06/12/24 21:05	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*104*		*46 - 130*	*06/12/24 10:50*	*06/12/24 21:05*	*1*

Lab Sample ID: LLCS 200-205181/2-A
Matrix: Water
Analysis Batch: 205200

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 205181

Analyte			Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits		
1,4-Dioxane			0.200	0.227		ug/L		113	50 - 150		

Surrogate	*LLCS %Recovery*	*LLCS Qualifier*	*Limits*
1,4-Dioxane-d8 (Surr)	*104*		*46 - 130*

QC Association Summary

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-205252-1

GC/MS Semi VOA

Prep Batch: 205181

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-205252-1	MW-91-6_052424	Total/NA	Water	522	
240-205252-2	MW-13-47_052424	Total/NA	Water	522	
240-205252-3	MW-13-38_052424	Total/NA	Water	522	
MB 200-205181/1-A	Method Blank	Total/NA	Water	522	
LLCS 200-205181/2-A	Lab Control Sample	Total/NA	Water	522	

Analysis Batch: 205200

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-205252-1	MW-91-6_052424	Total/NA	Water	522	205181
240-205252-2	MW-13-47_052424	Total/NA	Water	522	205181
240-205252-3	MW-13-38_052424	Total/NA	Water	522	205181
MB 200-205181/1-A	Method Blank	Total/NA	Water	522	205181
LLCS 200-205181/2-A	Lab Control Sample	Total/NA	Water	522	205181

Lab Chronicle

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-205252-1

Client Sample ID: MW-91-6_052424

Lab Sample ID: 240-205252-1

Date Collected: 05/24/24 09:00
Matrix: Water
Date Received: 05/25/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	522			205181	MJW	EET BUR	06/12/24 10:50
Total/NA	Analysis	522		1	205200	A1B	EET BUR	06/12/24 21:32

Client Sample ID: MW-13-47_052424

Lab Sample ID: 240-205252-2

Date Collected: 05/24/24 10:15
Matrix: Water
Date Received: 05/25/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	522			205181	MJW	EET BUR	06/12/24 10:50
Total/NA	Analysis	522		1	205200	A1B	EET BUR	06/12/24 21:46

Client Sample ID: MW-13-38_052424

Lab Sample ID: 240-205252-3

Date Collected: 05/24/24 11:40
Matrix: Water
Date Received: 05/25/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	522			205181	MJW	EET BUR	06/12/24 10:50
Total/NA	Analysis	522		1	205200	A1B	EET BUR	06/12/24 22:00

Laboratory References:

EET BUR = Eurofins Burlington, 530 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Accreditation/Certification Summary

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-205252-1

Laboratory: Eurofins Burlington

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
ANAB	Dept. of Defense ELAP	L2336	02-25-26
Connecticut	State	PH-0751	09-30-25
DE Haz. Subst. Cleanup Act (HSCA)	State	N/A	05-19-25
Florida	NELAP	E87467	06-30-24
Minnesota	NELAP	050-999-436	12-31-24
New Hampshire	NELAP	2006	12-18-24
New Jersey	NELAP	VT972	06-30-24
New York	NELAP	10391	03-31-25
Pennsylvania	NELAP	68-00489	04-30-25
Rhode Island	State	LAO00298	12-31-24
US Fish & Wildlife	US Federal Programs	058448	07-31-24
USDA	US Federal Programs	P330-17-00272	12-19-26
Vermont	State	VT4000	02-10-25
Virginia	NELAP	460209	12-14-24
Wisconsin	State	399140830	08-31-24

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180 S. Van Buren Avenue
Barberton, OH 44203
Phone: 330-497-9396 Fax: 330-497-0772

Plant 3

Chain of Custody Record

PLANT-3

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Client Information	Sampler: Bill Cobean	Lab PM: DelMonico, Michael	Carrier Tracking No(s):	COC No: 240-120951-42198.2
Client Contact: ~~Alex Villhauer~~ Kaitlyn.Hunt@arcadis.com	Phone: 616-566-3642	E-Mail: Michael.DelMonico@et.eurofinsus.com	State of Origin:	Page: Page 2 of 2
Company: Arcadis U.S., Inc.	PWSID:			Job #:

Analysis Requested

Address: 28550 Cabot Drive, Suite 500 ~~120 N. Washington Square, Suite 300 (3rd Floor)~~	Due Date Requested:	
City: ~~Lansing~~ Novi	TAT Requested (days): Standard TAT	
State, Zip: MI, ~~48933~~ 48377	Compliance Project: Δ Yes Δ No	
Phone: ~~810-225-1928(Tel)~~ 947-777-5215	PO #: Purchase Order not required	
Email: Kaitlyn.Hunt@arcadis.com ~~alex.villhauer@arcadis.com~~	WO #: 320140360.0470A Project #: ~~B0064607.2016.00001~~	
Project Name: Racer Lansing method 522	Project #: 24017406	
Site:	SSOW#:	

Preservation Codes: A - HCL

MICHIGAN 190

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	522 - 522- 1,4-Dioxane	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A		
MW-91-6_052424	5/24/24	960	G	Water	N	N	2		
MW-13-47_052424	5/24/24	1015	G	Water	N	N	2		
MW-13-38_052424	5/24/24	1140	G	Water	N	N	2		
				Water					
				Water					
				Water					
				Water					
				Water					
				Water					
				Water					
				Water					

240-205252 Chain of Custody

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Date/Time	Company		Date/Time	Company
Relinquished by: Jadie Schutte	5/24/24 1:30	arcadis	Received by:	5/24/24 1330	ET
Relinquished by:	5/24/24 1332	ET	Received by: TAMMY ROYER	5-25-24 900	ET TAL
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks:

Eurofins – Cleveland Sample Receipt Form/Narrative Login # : 205252

Barberton Facility

Client Arcadis Site Name

Cooler Received on 5-25-24 Opened on 5-25-24

Cooler unpacked by: TAMMY ROYER

FedEx. 1st Grd Exp UPS FAS Waypoint Client Drop Off Eurofins Courier Other

Receipt After-hours Drop-off Date/Time Storage Location

Eurofins Cooler # EC Foam Box Client Cooler Box Other

Packing material used: ~~Bubble Wrap~~ Foam Plastic Bag None Other

COOLANT ~~Wet Ice~~ Blue Ice Dry Ice Water None

1 Cooler temperature upon receipt ☐ See Multiple Cooler Form

IR GUN # 18 (CF 0.0 °C) Observed Cooler Temp 1.8 °C Corrected Cooler Temp 1.8 °C

2.	Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1	Yes No
	-Were the seals on the outside of the cooler(s) signed & dated?	Yes No NA
	-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes No
	-Were tamper/custody seals intact and uncompromised?	Yes No NA
3	Shippers' packing slip attached to the cooler(s)?	Yes No
4	Did custody papers accompany the sample(s)?	Yes No
5	Were the custody papers relinquished & signed in the appropriate place?	Yes No
6	Was/were the person(s) who collected the samples clearly identified on the COC?	Yes No
7	Did all bottles arrive in good condition (Unbroken)?	Yes No
8	Could all bottle labels (ID/Date/Time) be reconciled with the COC?	Yes No
9	For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)?	
10	Were correct bottle(s) used for the test(s) indicated?	Yes No
11	Sufficient quantity received to perform indicated analyses?	Yes No
12	Are these work share samples and all listed on the COC?	Yes No
	If yes, Questions 13-17 have been checked at the originating laboratory	
13	Were all preserved sample(s) at the correct pH upon receipt?	Yes No NA pH Strip Lot# HC339814
14	Were VOAs on the COC?	Yes No
15	Were air bubbles >6 mm in any VOA vials? ● ← Larger than this.	Yes No NA
16	Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #	Yes No
17	Was a LL Hg or Me Hg trip blank present?	Yes No

Tests that are not checked for pH by Receiving

VOAs
Oil and Grease
TOC

Contacted PM Date by via Verbal Voice Mail Other

Concerning

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES ☐ additional next page

Samples processed by:

19. SAMPLE CONDITION

Sample(s) were received after the recommended holding time had expired.

Sample(s) were received in a broken container

Sample(s) were received with bubble >6 mm in diameter (Notify PM)

20. SAMPLE PRESERVATION

Sample(s) were further preserved in the laboratory

Time preserved. Preservative(s) added/Lot number(s).

VOA Sample Preservation - Date/Time VOAs Frozen.

5/25/2024

Login Container Summary Report

240-205252

6/13/2024

Temperature readings _____

Client Sample ID	Lab ID	Container Type	Container pH	Container Temp	Preservation Added	Preservation Lot Number
MW-19-6-052424	240-205252-A-1	Amber Glass 250mL - hydrochloric acid				
MW-19-6-052424	240-205252-B-1	Amber Glass 250mL - hydrochloric acid				
MW-13-47-052424	240-205252-A-2	Amber Glass 250mL - hydrochloric acid				
MW-13-47-052424	240-205252-B-2	Amber Glass 250mL - hydrochloric acid				
MW-13-38-052424	240-205252-A-3	Amber Glass 250mL - hydrochloric acid				
MW-13-38-052424	240-205252-B-3	Amber Glass 250mL - hydrochloric acid				

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Barberton, OH 44203
Phone: 330-497-9396 Fax: 330-497-0772

Chain of Custody Record

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Client Information (Sub Contract Lab)	Sampler:	Lab PM: DelMonico, Michael	Carrier Tracking No(s):	COC No.: 240-185388.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Michael.DelMonico@et.eurofinsus.com	State of Origin: Michigan	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 240-205252-1
Address: 530 Community Drive, Suite 11,	Due Date Requested: 6/12/2024			Preservation Codes: -
City: South Burlington	TAT Requested (days):			
State, Zip: VT, 05403				
Phone: 802-660-1990(Tel) 802-660-1919(Fax)	PO #:			
Email:	WO #:			
Project Name: Racer Lansing B0064480.2016.00603	Project #: 24017406			
Site:	SSOW#:			Other:

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	522/522_CWA_Prep	Total Number of Containers	Special Instructions/Note:
			Preservation Code:						
MW-91-6-052424 (240-205252-1)	5/24/24	09:00 Eastern		Water			X	2	
MW-13-47-052424 (240-205252-2)	5/24/24	10:15 Eastern		Water			X	2	
MW-13-38-052424 (240-205252-3)	5/24/24	11:40 Eastern		Water			X	2	

240-205252 Chain of Custody

Environment Testing North Central, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing North Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing North Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing North Central, LLC

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Michelle Hance	52824 950	ESTNC	Luca Silva	5/29/24 1030	ETA Bwd
Relinquished by:	Date/Time	Company	Received by:	Date/Time.	Company
Relinquished by:	Date/Time.	Company	Received by:	Date/Time	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks

Ver: 04/02/2024



ORIGIN ID:CAKA (330) 312-0176
LANCE HERSHMAN
EUROFINS TESTAMERICA BARBERTON
180 S VAN BUREN

BARBERTON, OH 44203
UNITED STATES US

SHIP DATE: 28MAY24
ACTWGT: 60.00 LB MAN
CAD: 0792304/CAFE3608

BILL SENDER

TO SHIPPING/RECEIVING
TESTAMERICA LABORATORIES, INC.
530 COMMUNITY DRIVE
SUITE 11
SOUTH BURLINGTON VT 05403
(802) 660-1990 REF: 8240-121088
PO: YES

FedEx Express

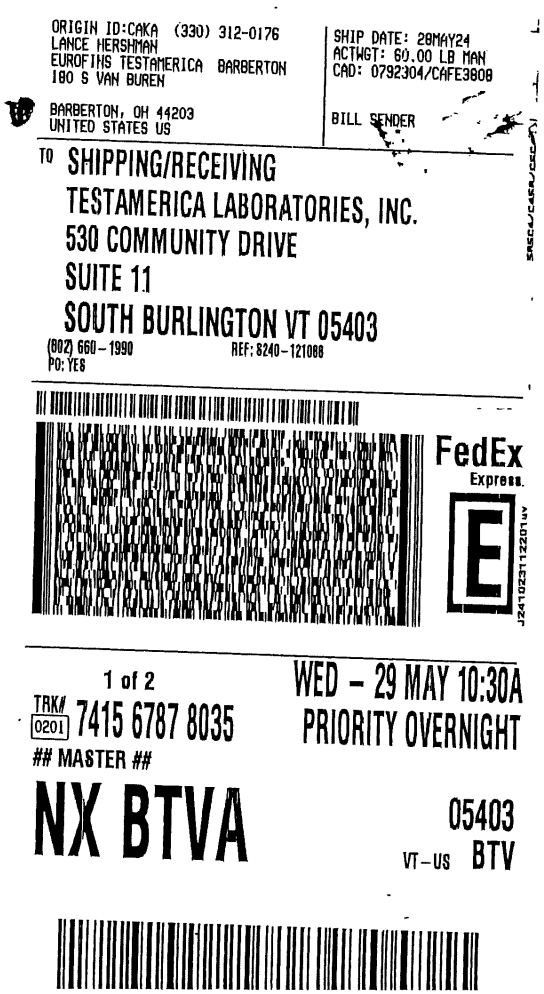
J241023112201uv

2 of 2
MPS# 0263 7415 6787 8046
Mstr# 7415 6787 8035 0201

WED - 29 MAY 10:30A
PRIORITY OVERNIGHT

NX BTVA

05403
VT-US BTV



ORIGIN ID:CAKA (330) 312-0176
LANCE HERSHMAN
EUROFINS TESTAMERICA BARBERTON
180 S VAN BUREN

BARBERTON, OH 44203
UNITED STATES US

SHIP DATE: 28MAY24
ACTWGT: 60.00 LB MAN
CAD: 0792304/CAFE3808

BILL SENDER

TO SHIPPING/RECEIVING
TESTAMERICA LABORATORIES, INC.
530 COMMUNITY DRIVE
SUITE 11
SOUTH BURLINGTON VT 05403
(802) 660-1990 REF: 8240-121088
PO: YES

FedEx Express

J241023112201uv

1 of 2
TRK# 0201 7415 6787 8035
MASTER

WED - 29 MAY 10:30A
PRIORITY OVERNIGHT

NX BTVA

05403
VT-US BTV

Login Sample Receipt Checklist

Client: Arcadis U.S., Inc.

Job Number: 240-205252-1

Login Number: 205252
List Number: 2
Creator: Lavigne, Scott M

List Source: Eurofins Burlington
List Creation: 05/29/24 01:34 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	Not present
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.4ºC, 1.0ºC
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	N/A	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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ANALYTICAL REPORT

PREPARED FOR

Attn: Tiffany Linder
Arcadis U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Generated 6/13/2024 11:54:13 AM

JOB DESCRIPTION

Racer Lansing

JOB NUMBER

240-205253-1

Eurofins Cleveland
180 S. Van Buren Avenue
Barberton OH 44203

See page two for job notes and contact information.

my EOL

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

Authorization



Generated
6/13/2024 11:54:13 AM

Authorized for release by
Michael DelMonico, Project Manager I
Michael.DelMonico@et.eurofinsus.com
(330)497-9396

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Definitions/Glossary

Client: Arcadis U.S., Inc.
Job ID: 240-205253-1
Project/Site: Racer Lansing

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job Narrative
240-205253-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 5/25/2024 8:00 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.8°C.

GC/MS Semi VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Method Summary

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-205253-1

Method	Method Description	Protocol	Laboratory
522	1,4 Dioxane (GC/MS SIM)	EPA	EET BUR
522	Solid-Phase Extraction (SPE)	EPA	EET BUR

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

EET BUR = Eurofins Burlington, 530 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Sample Summary

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-205253-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-205253-1	MW-12-01_052424	Water	05/24/24 09:20	05/25/24 08:00
240-205253-2	MW-12-02_052424	Water	05/24/24 10:55	05/25/24 08:00
240-205253-3	MW-12-06_052424	Water	05/24/24 10:30	05/25/24 08:00
240-205253-4	DUP-04_052424	Water	05/24/24 00:00	05/25/24 08:00

Detection Summary

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-205253-1

Client Sample ID: MW-12-01_052424 — Lab Sample ID: 240-205253-1

No Detections.

Client Sample ID: MW-12-02_052424 — Lab Sample ID: 240-205253-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	0.92		0.20	0.092	ug/L	1		522	Total/NA

Client Sample ID: MW-12-06_052424 — Lab Sample ID: 240-205253-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	0.11	J	0.20	0.092	ug/L	1		522	Total/NA

Client Sample ID: DUP-04_052424 — Lab Sample ID: 240-205253-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	0.89		0.20	0.092	ug/L	1		522	Total/NA

This Detection Summary does not include radiochemical test results.

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-205253-1

Client Sample ID: MW-12-01_052424
Date Collected: 05/24/24 09:20
Date Received: 05/25/24 08:00

Lab Sample ID: 240-205253-1
Matrix: Water

Method: EPA 522 - 1,4 Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.20	U	0.20	0.092	ug/L		06/12/24 10:50	06/12/24 22:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*69*		*46 - 130*	*06/12/24 10:50*	*06/12/24 22:13*	*1*

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-205253-1

Client Sample ID: MW-12-02_052424
Date Collected: 05/24/24 10:55
Date Received: 05/25/24 08:00

Lab Sample ID: 240-205253-2
Matrix: Water

Method: EPA 522 - 1,4 Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.92		0.20	0.092	ug/L		06/12/24 10:50	06/12/24 22:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*104*		*46 - 130*	*06/12/24 10:50*	*06/12/24 22:27*	*1*

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-205253-1

Client Sample ID: MW-12-06_052424
Date Collected: 05/24/24 10:30
Date Received: 05/25/24 08:00

Lab Sample ID: 240-205253-3
Matrix: Water

Method: EPA 522 - 1,4 Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.11	J	0.20	0.092	ug/L		06/12/24 10:50	06/12/24 22:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*81*		*46 - 130*	*06/12/24 10:50*	*06/12/24 22:40*	*1*

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-205253-1

Client Sample ID: DUP-04_052424
Date Collected: 05/24/24 00:00
Date Received: 05/25/24 08:00

Lab Sample ID: 240-205253-4
Matrix: Water

Method: EPA 522 - 1,4 Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.89		0.20	0.092	ug/L		06/12/24 10:50	06/12/24 22:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*98*		*46 - 130*	*06/12/24 10:50*	*06/12/24 22:54*	*1*

Surrogate Summary

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-205253-1

Method: 522 - 1,4 Dioxane (GC/MS SIM)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)							
		DXE							
Lab Sample ID	Client Sample ID	(46-130)							
240-205253-1	MW-12-01_052424	69							
240-205253-2	MW-12-02_052424	104							
240-205253-3	MW-12-06_052424	81							
240-205253-4	DUP-04_052424	98							
LLCS 200-205181/2-A	Lab Control Sample	104							
MB 200-205181/1-A	Method Blank	104							

Surrogate Legend

DXE = 1,4-Dioxane-d8 (Surr)

Method: 522 - 1,4 Dioxane (GC/MS SIM)

Lab Sample ID: MB 200-205181/1-A
Matrix: Water
Analysis Batch: 205200

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 205181

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.20	U	0.20	0.092	ug/L		06/12/24 10:50	06/12/24 21:05	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8 (Surr)	*104*		*46 - 130*	*06/12/24 10:50*	*06/12/24 21:05*	*1*

Lab Sample ID: LLCS 200-205181/2-A
Matrix: Water
Analysis Batch: 205200

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 205181

Analyte			Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits		
1,4-Dioxane			0.200	0.227		ug/L		113	50 - 150		

Surrogate	*LLCS %Recovery*	*LLCS Qualifier*	*Limits*
1,4-Dioxane-d8 (Surr)	*104*		*46 - 130*

QC Association Summary

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-205253-1

GC/MS Semi VOA

Prep Batch: 205181

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-205253-1	MW-12-01_052424	Total/NA	Water	522	
240-205253-2	MW-12-02_052424	Total/NA	Water	522	
240-205253-3	MW-12-06_052424	Total/NA	Water	522	
240-205253-4	DUP-04_052424	Total/NA	Water	522	
MB 200-205181/1-A	Method Blank	Total/NA	Water	522	
LLCS 200-205181/2-A	Lab Control Sample	Total/NA	Water	522	

Analysis Batch: 205200

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-205253-1	MW-12-01_052424	Total/NA	Water	522	205181
240-205253-2	MW-12-02_052424	Total/NA	Water	522	205181
240-205253-3	MW-12-06_052424	Total/NA	Water	522	205181
240-205253-4	DUP-04_052424	Total/NA	Water	522	205181
MB 200-205181/1-A	Method Blank	Total/NA	Water	522	205181
LLCS 200-205181/2-A	Lab Control Sample	Total/NA	Water	522	205181

Lab Chronicle

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-205253-1

Client Sample ID: MW-12-01_052424

Lab Sample ID: 240-205253-1

Date Collected: 05/24/24 09:20

Matrix: Water

Date Received: 05/25/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	522			205181	MJW	EET BUR	06/12/24 10:50
Total/NA	Analysis	522		1	205200	A1B	EET BUR	06/12/24 22:13

Client Sample ID: MW-12-02_052424

Lab Sample ID: 240-205253-2

Date Collected: 05/24/24 10:55

Matrix: Water

Date Received: 05/25/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	522			205181	MJW	EET BUR	06/12/24 10:50
Total/NA	Analysis	522		1	205200	A1B	EET BUR	06/12/24 22:27

Client Sample ID: MW-12-06_052424

Lab Sample ID: 240-205253-3

Date Collected: 05/24/24 10:30

Matrix: Water

Date Received: 05/25/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	522			205181	MJW	EET BUR	06/12/24 10:50
Total/NA	Analysis	522		1	205200	A1B	EET BUR	06/12/24 22:40

Client Sample ID: DUP-04_052424

Lab Sample ID: 240-205253-4

Date Collected: 05/24/24 00:00

Matrix: Water

Date Received: 05/25/24 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	522			205181	MJW	EET BUR	06/12/24 10:50
Total/NA	Analysis	522		1	205200	A1B	EET BUR	06/12/24 22:54

Laboratory References:

EET BUR = Eurofins Burlington, 530 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Accreditation/Certification Summary

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-205253-1

Laboratory: Eurofins Burlington

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
ANAB	Dept. of Defense ELAP	L2336	02-25-26
Connecticut	State	PH-0751	09-30-25
DE Haz. Subst. Cleanup Act (HSCA)	State	N/A	05-19-25
Florida	NELAP	E87467	06-30-24
Minnesota	NELAP	050-999-436	12-31-24
New Hampshire	NELAP	2006	12-18-24
New Jersey	NELAP	VT972	06-30-24
New York	NELAP	10391	03-31-25
Pennsylvania	NELAP	68-00489	04-30-25
Rhode Island	State	LAO00298	12-31-24
US Fish & Wildlife	US Federal Programs	058448	07-31-24
USDA	US Federal Programs	P330-17-00272	12-19-26
Vermont	State	VT4000	02-10-25
Virginia	NELAP	460209	12-14-24
Wisconsin	State	399140830	08-31-24

Eurofins Cleveland
180 S. Van Buren Avenue
Barberton, OH 44203
Phone: 330-497-9396 Fax: 330-497-0772

Plant 2

Chain of Custody Record

1-8-18

eurofins | Environment Testing

Client Information	Sampler: Donald Richmond / Donald Richmond	Lab PM: DelMonico, Michael	Carrier Tracking No(s):	COC No: 240-120951-42198.1
Client Contact: ~~Alex Villhauer~~ Kaitlyn.Hunt@arcadis.com	Phone: 248 464 4877	E-Mail: Michael.DelMonico@et.eurofinsus.com	State of Origin:	Page: Page 1 of 2
Company: Arcadis U.S., Inc.	PWSID:	Analysis Requested		Job #:
Address: 28550 Cabot Drive, Suite 500 ~~120 N. Washington Square Suite 300 (3rd Floor)~~	Due Date Requested:			Preservation Codes: A - HCL
City: ~~Lansing~~ Novi	TAT Requested (days): Standard TAT			
State, Zip: MI, ~~48933~~ 48377	Compliance Project: Δ Yes Δ No			
Phone: ~~810-225-1926(Tel)~~ 947-777-5215	PO #: Purchase Order not required			MICHIGAN 190
Email: Kaitlyn.Hunt@arcadis.com ~~alex.villhauer@arcadis.com~~	WO #: 30214036.0470A Project #: ~~B0064607.2016.00001~~			Other:
Project Name: Racer Lansing method 522	Project #: 24017406			
Site:	SSOW#:			

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	522 - 522- 1,4-Dioxane	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A		
MW-12-01_052424	5/24/24	0920	G	Water	N	N	X		
MW-12-02_052424	5/24/24	1055	G	Water	N	N	X		
MW-12-06_052424	5/24/24	1030	G	Water	N	N	X		
				Water					
				Water					
				Water					
				Water					
				Water					
				Water					
				Water					
Dup-04_052424	5/24/24	—	G	Water	N	N	X		

240-205253 Chain of Custody

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Jackie Schulte	5/24/24 1:30 pm	arcadis		5/24/24 1330	ET/T
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	5/24/24 1352	ET/T	TAMMY ROYER	5-25-24 800	ETNC
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

Eurofins – Cleveland Sample Receipt Form/Narrative Login # :
Barberton Facility

Client Arcadis Site Name

Cooler unpacked by: TAMMY ROYER

Cooler Received on 5-25-24 Opened on 5-25-24

FedEx. 1st Grd Exp UPS FAS Waypoint Client Drop Off Eurofins Courier Other

Receipt After-hours Drop-off Date/Time Storage Location

Eurofins Cooler # EC ~~Foam Box~~ Client Cooler Box Other

Packing material used: ~~Bubble Wrap~~ Foam Plastic Bag None Other

COOLANT: ~~Wet Ice~~ Blue Ice Dry Ice Water None

1 Cooler temperature upon receipt ☐ See Multiple Cooler Form

IR GUN # 18 (CF 0.0 °C) Observed Cooler Temp. 1.8 °C Corrected Cooler Temp 1.8 °C

2.	Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1	Yes No
	-Were the seals on the outside of the cooler(s) signed & dated?	Yes No NA
	-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes No
	-Were tamper/custody seals intact and uncompromised?	Yes No NA
3	Shippers' packing slip attached to the cooler(s)?	Yes No
4	Did custody papers accompany the sample(s)?	Yes No
5	Were the custody papers relinquished & signed in the appropriate place?	Yes No
6.	Was/were the person(s) who collected the samples clearly identified on the COC?	Yes No
7	Did all bottles arrive in good condition (Unbroken)?	Yes No
8	Could all bottle labels (ID/Date/Time) be reconciled with the COC?	Yes No
9	For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)?	
10	Were correct bottle(s) used for the test(s) indicated?	Yes No
11	Sufficient quantity received to perform indicated analyses?	Yes No
12	Are these work share samples and all listed on the COC?	Yes No
	If yes, Questions 13-17 have been checked at the originating laboratory	
13	Were all preserved sample(s) at the correct pH upon receipt?	Yes No NA pH Strip Lot# HC339814
14	Were VOAs on the COC?	Yes No
15	Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this	Yes No NA
16	Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #	Yes No
17	Was a LL Hg or Me Hg trip blank present?	Yes No

Tests that are not checked for pH by Receiving:
VOAs
Oil and Grease
TOC

Contacted PM Date by via Verbal Voice Mail Other

Concerning

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES ☐ additional next page

Samples processed by:

19 SAMPLE CONDITION

Sample(s) were received after the recommended holding time had expired.
Sample(s) were received in a broken container
Sample(s) were received with bubble >6 mm in diameter (Notify PM)

20. SAMPLE PRESERVATION

Sample(s) were further preserved in the laboratory
Time preserved. Preservative(s) added/Lot number(s)

VOA Sample Preservation - Date/Time VOAs Frozen.

5/25/2024

Login Container Summary Report

240-205253

6/13/2024

Temperature readings _____

Client Sample ID	Lab ID	Container Type	Container pH	Container Temp	Preservation Added	Preservation Lot Number
MW-12-01-052424	240-205253-A-1	Amber Glass 250mL - hydrochloric acid				
MW-12-01-052424	240-205253-B-1	Amber Glass 250mL - hydrochloric acid				
MW-12-02-052424	240-205253-A-2	Amber Glass 250mL - hydrochloric acid				
MW-12-02-052424	240-205253-B-2	Amber Glass 250mL - hydrochloric acid				
MW-12-06-052424	240-205253-A-3	Amber Glass 250mL - hydrochloric acid				
MW-12-06-052424	240-205253-B-3	Amber Glass 250mL - hydrochloric acid				
DUP-04_052424	240-205253-A-4	Amber Glass 250mL - hydrochloric acid				
DUP-04_052424	240-205253-B-4	Amber Glass 250mL - hydrochloric acid				

Login Sample Receipt Checklist

Client: Arcadis U.S., Inc.

Job Number: 240-205253-1

Login Number: 205253
List Number: 2
Creator: Lavigne, Scott M

List Source: Eurofins Burlington
List Creation: 05/29/24 01:43 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	Not present
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.4ºC, 1.0ºC
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	N/A	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Analytical Laboratory Report

Report ID: S62135.01(01)+QC01
Generated on 05/22/2024

Report to

Attention: Kaitlyn Hunt
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 C:947-777-5215 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Addtional Contacts: Marina Samp, Tiffany Linder

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S62135.01-S62135.02
Project: 30214036.0470A / RACER Lansing GWS
Collected Date(s): 05/15/2024
Submitted Date/Time: 05/16/2024 12:10
Sampled by: Austin Westhuis
P.O. #: US3460016166

Table of Contents

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Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Starred (*) analytes are not NY NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.
Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.
All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.
For a specific list of accredited analytes, please feel free to contact the laboratory or visit https://www.meritlabs.com/certifications.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
o	Associated EIS outside of control limits
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
q	Qualifier ion ratio outside of control limits
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
N/A	Not Applicable
SW3510C	SW 846 Method 3510C Revision 3 December 1996
SW5030C/8260C	SW 846 Method 8260C Revision 3 August 2006 / 5030C Revision 3 May 2003
SW8260B - SIM	SW 846 Method 8260B Revision 2 December 1996 SIMs
SW8270D	SW 846 Method 8270D Revision 4 February 2007

Sample Summary (2 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S62135.01	MW-14-62_051524	Groundwater	05/15/24 17:40
S62135.02	Trip Blank	Water	05/15/24 00:01

Lab Sample ID: S62135.01
Sample Tag: MW-14-62_051524
Collected Date/Time: 05/15/2024 17:40
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	6.0	IR
2	1L Amber	None	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/20/24 11:45	NDK	
BNA Extraction	Completed	SW3510C	05/17/24 15:00	JWR	

Organics - Semi-Volatiles

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 05/21/24 19:15, Analyst: PL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acenaphthene	Not detected	5		ug/L	2	83-32-9	
Acenaphthylene	Not detected	5		ug/L	2	208-96-8	
Anthracene	Not detected	5		ug/L	2	120-12-7	
Benzo(a)anthracene	Not detected	1		ug/L	2	56-55-3	
Benzo(b)fluoranthene	Not detected	1		ug/L	2	205-99-2	
Benzo(k)fluoranthene	Not detected	1		ug/L	2	207-08-9	
Benzo(ghi)perylene	Not detected	1		ug/L	2	191-24-2	
Benzo(a)pyrene	Not detected	1		ug/L	2	50-32-8	
bis(2-Chloroethoxy)methane	Not detected	5		ug/L	2	111-91-1	
bis(2-Chloroethyl)ether	Not detected	5		ug/L	2	111-44-4	
bis(2-Chloroisopropyl)ether*	Not detected	5		ug/L	2	108-60-1	
bis(2-Ethylhexyl)phthalate	Not detected	5		ug/L	2	117-81-7	
4-Bromophenyl phenyl ether	Not detected	5		ug/L	2	101-55-3	
Butyl benzyl phthalate	Not detected	5		ug/L	2	85-68-7	
4-Chloroaniline	Not detected	10		ug/L	2	106-47-8	
2-Chloronaphthalene	Not detected	5		ug/L	2	91-58-7	
4-Chloro-3-methylphenol	Not detected	5		ug/L	2	59-50-7	
2-Chlorophenol	Not detected	10		ug/L	2	95-57-8	
4-Chlorophenyl phenyl ether	Not detected	5		ug/L	2	7005-72-3	
Chrysene	Not detected	1		ug/L	2	218-01-9	
3-, 4-Methylphenol (p,m-Cresol)	Not detected	20		ug/L	2	3/4-CRESOL	
2-Methylphenol (o-Cresol)	Not detected	10		ug/L	2	95-48-7	
Dibenzo(ah)anthracene	Not detected	2		ug/L	2	53-70-3	
Dibenzofuran	Not detected	4		ug/L	2	132-64-9	
di-n-Butyl phthalate	Not detected	5		ug/L	2	84-74-2	
1,2-Dichlorobenzene	Not detected	1		ug/L	2	95-50-1	
1,3-Dichlorobenzene	Not detected	1		ug/L	2	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	2	106-46-7	
3,3'-Dichlorobenzidine	Not detected	5		ug/L	2	91-94-1	
2,4-Dichlorophenol	Not detected	10		ug/L	2	120-83-2	
Diethyl phthalate	Not detected	5		ug/L	2	84-66-2	
2,4-Dimethylphenol	Not detected	5		ug/L	2	105-67-9	
Dimethyl phthalate	Not detected	5		ug/L	2	131-11-3	
4,6-Dinitro-2-methylphenol	Not detected	20		ug/L	2	534-52-1	
2,4-Dinitrophenol	Not detected	25		ug/L	2	51-28-5	

Lab Sample ID: S62135.01 (continued)
Sample Tag: MW-14-62_051524

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 05/21/24 19:15, Analyst: PL (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
2,4-Dinitrotoluene	Not detected	5		ug/L	2	121-14-2	
2,6-Dinitrotoluene	Not detected	5		ug/L	2	606-20-2	
1,2-Diphenylhydrazine*	Not detected	5		ug/L	2	122-66-7	
di-n-Octyl phthalate	Not detected	5		ug/L	2	117-84-0	
Fluoranthene	Not detected	1		ug/L	2	206-44-0	
Fluorene	Not detected	5		ug/L	2	86-73-7	
Hexachlorobenzene	Not detected	5		ug/L	2	118-74-1	
Hexachlorobutadiene	Not detected	10		ug/L	2	87-68-3	
Hexachlorocyclopentadiene*	Not detected	5		ug/L	2	77-47-4	
Hexachloroethane	Not detected	5		ug/L	2	67-72-1	
Indeno(1,2,3-cd)pyrene	Not detected	2		ug/L	2	193-39-5	
Isophorone	Not detected	5		ug/L	2	78-59-1	
2-Methylnaphthalene	Not detected	5		ug/L	2	91-57-6	
Naphthalene	Not detected	5		ug/L	2	91-20-3	
2-Nitroaniline	Not detected	25		ug/L	2	88-74-4	
3-Nitroaniline	Not detected	25		ug/L	2	99-09-2	
4-Nitroaniline	Not detected	25		ug/L	2	100-01-6	
Nitrobenzene	Not detected	5		ug/L	2	98-95-3	
2-Nitrophenol	Not detected	5		ug/L	2	88-75-5	
4-Nitrophenol	Not detected	25		ug/L	2	100-02-7	
N-Nitrosodiphenylamine	Not detected	5		ug/L	2	86-30-6	
N-Nitrosodi-n-propylamine	Not detected	5		ug/L	2	621-64-7	
Pentachlorophenol	Not detected	5		ug/L	2	87-86-5	
Phenanthrene	Not detected	2		ug/L	2	85-01-8	
Phenol	Not detected	5		ug/L	2	108-95-2	
Pyrene	Not detected	5		ug/L	2	129-00-0	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	2	120-82-1	
2,4,5-Trichlorophenol	Not detected	5		ug/L	2	95-95-4	
2,4,6-Trichlorophenol	Not detected	4		ug/L	2	88-06-2	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/21/24 22:14, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	112	1		ug/L	1	123-91-1	

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/20/24 15:52, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	3	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	8	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	

Lab Sample ID: S62135.01 (continued)
Sample Tag: MW-14-62_051524

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/20/24 15:52, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	222	1		ug/L	1	75-34-3	E
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	1	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	

E-Concentration exceeds calibration range

Lab Sample ID: S62135.01 (continued)
Sample Tag: MW-14-62_051524

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/20/24 15:52, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Volatile Organics - DEQ List (Replicate 01), Method: SW5030C/8260C, Run Date: 05/21/24 21:07, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	100		ug/L	10	60-29-7	Y
Acetone	Not detected	500		ug/L	10	67-64-1	Y
Methyl iodide	Not detected	10		ug/L	10	74-88-4	Y
Carbon disulfide	Not detected	50		ug/L	10	75-15-0	Y
tert-Methyl butyl ether (MTBE)	Not detected	50		ug/L	10	1634-04-4	Y
Acrylonitrile	Not detected	20		ug/L	10	107-13-1	Y
2-Butanone (MEK)	Not detected	250		ug/L	10	78-93-3	Y
Dichlorodifluoromethane	Not detected	50		ug/L	10	75-71-8	Y
Chloromethane	Not detected	50		ug/L	10	74-87-3	Y
Vinyl chloride	Not detected	10		ug/L	10	75-01-4	Y
Bromomethane	Not detected	50		ug/L	10	74-83-9	Y
Chloroethane	Not detected	50		ug/L	10	75-00-3	Y
Trichlorofluoromethane	Not detected	10		ug/L	10	75-69-4	Y
1,1-Dichloroethene	Not detected	10		ug/L	10	75-35-4	Y
Methylene chloride	Not detected	50		ug/L	10	75-09-2	Y
trans-1,2-Dichloroethene	Not detected	10		ug/L	10	156-60-5	Y
1,1-Dichloroethane	140	10		ug/L	10	75-34-3	Y
cis-1,2-Dichloroethene	Not detected	10		ug/L	10	156-59-2	Y
Tetrahydrofuran*	Not detected	900		ug/L	10	109-99-9	Y
Chloroform	Not detected	10		ug/L	10	67-66-3	Y
Bromochloromethane	Not detected	10		ug/L	10	74-97-5	Y
1,1,1-Trichloroethane	Not detected	10		ug/L	10	71-55-6	Y
4-Methyl-2-pentanone (MIBK)	Not detected	500		ug/L	10	108-10-1	Y
2-Hexanone	Not detected	500		ug/L	10	591-78-6	Y
Carbon tetrachloride	Not detected	10		ug/L	10	56-23-5	Y
Benzene	Not detected	10		ug/L	10	71-43-2	Y
1,2-Dichloroethane	Not detected	10		ug/L	10	107-06-2	Y
Trichloroethene	Not detected	10		ug/L	10	79-01-6	Y
1,2-Dichloropropane	Not detected	10		ug/L	10	78-87-5	Y
Bromodichloromethane	Not detected	10		ug/L	10	75-27-4	Y
Dibromomethane	Not detected	50		ug/L	10	74-95-3	Y
cis-1,3-Dichloropropene	Not detected	10		ug/L	10	10061-01-5	Y
Toluene	Not detected	10		ug/L	10	108-88-3	Y
trans-1,3-Dichloropropene	Not detected	10		ug/L	10	10061-02-6	Y
1,1,2-Trichloroethane	Not detected	10		ug/L	10	79-00-5	Y
Tetrachloroethene	Not detected	10		ug/L	10	127-18-4	Y
trans-1,4-Dichloro-2-butene	Not detected	10		ug/L	10	110-57-6	Y
Dibromochloromethane	Not detected	50		ug/L	10	124-48-1	Y
1,2-Dibromoethane	Not detected	10		ug/L	10	106-93-4	Y
Chlorobenzene	Not detected	10		ug/L	10	108-90-7	Y
1,1,1,2-Tetrachloroethane	Not detected	10		ug/L	10	630-20-6	Y

Y-Elevated reporting limit due to high target concentration

Lab Sample ID: S62135.01 (continued)
Sample Tag: MW-14-62_051524

Volatile Organics - DEQ List (Replicate 01), Method: SW5030C/8260C, Run Date: 05/21/24 21:07, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Ethylbenzene	Not detected	10		ug/L	10	100-41-4	Y
p,m-Xylene*	Not detected	20		ug/L	10		Y
o-Xylene	Not detected	10		ug/L	10	95-47-6	Y
Styrene	Not detected	10		ug/L	10	100-42-5	Y
Isopropylbenzene	Not detected	50		ug/L	10	98-82-8	Y
Bromoform	Not detected	10		ug/L	10	75-25-2	Y
1,1,2,2-Tetrachloroethane	Not detected	10		ug/L	10	79-34-5	Y
1,2,3-Trichloropropane	Not detected	10		ug/L	10	96-18-4	Y
n-Propylbenzene	Not detected	10		ug/L	10	103-65-1	Y
Bromobenzene	Not detected	10		ug/L	10	108-86-1	Y
1,3,5-Trimethylbenzene	Not detected	10		ug/L	10	108-67-8	Y
tert-Butylbenzene	Not detected	10		ug/L	10	98-06-6	Y
1,2,4-Trimethylbenzene	Not detected	10		ug/L	10	95-63-6	Y
sec-Butylbenzene	Not detected	10		ug/L	10	135-98-8	Y
p-Isopropyltoluene	Not detected	50		ug/L	10	99-87-6	Y
1,3-Dichlorobenzene	Not detected	10		ug/L	10	541-73-1	Y
1,4-Dichlorobenzene	Not detected	10		ug/L	10	106-46-7	Y
1,2-Dichlorobenzene	Not detected	10		ug/L	10	95-50-1	Y
1,2,3-Trimethylbenzene	Not detected	10		ug/L	10	526-73-8	Y
n-Butylbenzene	Not detected	10		ug/L	10	104-51-8	Y
Hexachloroethane	Not detected	50		ug/L	10	67-72-1	Y
1,2-Dibromo-3-chloropropane	Not detected	50		ug/L	10	96-12-8	Y
1,2,4-Trichlorobenzene	Not detected	50		ug/L	10	120-82-1	Y
1,2,3-Trichlorobenzene	Not detected	50		ug/L	10	87-61-6	Y
Naphthalene	Not detected	50		ug/L	10	91-20-3	Y
2-Methylnaphthalene	Not detected	50		ug/L	10	91-57-6	Y

Y-Elevated reporting limit due to high target concentration

Lab Sample ID: S62135.02
Sample Tag: Trip Blank
Collected Date/Time: 05/15/2024 00:01
Matrix: Water
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/17/24 11:15	NDK	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/16/24 17:12, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	

Lab Sample ID: S62135.02 (continued)
Sample Tag: Trip Blank

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/16/24 17:12, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Quality Control Report

Report ID: S62135.01(01)+QC01
Generated on 05/22/2024

Report to

Attention: Kaitlyn Hunt
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 C:947-777-5215 FAX:

Report Produced by

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2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S62135.01-S62135.02
Project: 30214036.0470A / RACER Lansing GWS
Submitted Date/Time: 05/16/2024 12:10
Sampled by: Austin Westhuis
P.O. #: US3460016166

QC Report Sections

Cover Page (Page 13)
Analysis Summary (Pages 14-15)
Prep Batch Summary (Page 16)
Surrogates per Lab Sample (Pages 17-18)
Surrogates per QC Sample (Pages 19-24)
Internal Standards per Lab Sample (Pages 25-26)
Internal Standards per QC Sample (Pages 27-32)
Batch QC Results (Pages 33-56)

Report Flag Descriptions

*: QC result is outside of indicated control limits
W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.

Barbara Ball
Quality Assurance Manager

Lab Sample ID: S62135.01
Sample Tag: MW-14-62_051524
Collected Date/Time: 05/15/2024 17:40
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Semi-Volatiles						
Semi-Volatile Organics - MDEQ	SW8270D	05/21/24 19:15	U240521	SF240517W1	Yes	BLK/LCS/LCSD
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/21/24 22:14	K240521	VD240521W1	Yes	BLK/LCS/LCSD/MS/MS
Volatile Organics - DEQ List	SW5030C/8260C	05/20/24 15:52	240520A3	VF240520W2	Yes	BLK/LCS/LCSD/MS/MS
Volatile Organics - DEQ List (Replicate 01)	SW5030C/8260C	05/21/24 21:07	240521A9	VF240521W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S62135.02

Sample Tag: Trip Blank

Collected Date/Time: 05/15/2024 00:01

Matrix: Water

COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	05/16/24 17:12	240516A7	VF240516W3	Yes	BLK/LCS/LCSD

Organics - Semi-Volatiles, Prep Batch ID: SF240517W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S62135.01	Semi-Volatile Organics - MDEQ	SW8270D	05/21/24 19:15	U240521

Organics - Volatiles, Prep Batch ID: VD240521W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S62135.01	1,4-Dioxane	SW8260B - SIM	05/21/24 22:14	K240521

Organics - Volatiles, Prep Batch ID: VF240516W3

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S62135.02	Volatile Organics - DEQ List	SW5030C/8260C	05/16/24 17:12	240516A7

Organics - Volatiles, Prep Batch ID: VF240520W2

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S62135.01	Volatile Organics - DEQ List	SW5030C/8260C	05/20/24 15:52	240520A3

Organics - Volatiles, Prep Batch ID: VF240521W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S62135.01	Volatile Organics - DEQ List (Replicate 01)	SW5030C/8260C	05/21/24 21:07	240521A9

QC Report - Surrogates per Lab Sample

Lab Sample ID: S62135.01

Sample Tag: MW-14-62_051524

Collected Date/Time: 05/15/2024 17:40

Matrix: Groundwater

COC Reference:

Organics - Semi-Volatiles, Analysis: Semi-Volatile Organics - MDEQ

Run in Batch: U240521, Run Date: 05/21/2024 19:15, Matrix: WW, Dilution: 2

Surrogate	Flags	%Rec	LCL	UCL
2-Fluorophenol		**26.6**	10.0	110.0
Phenol-D5		**18.2**	10.0	110.0
Nitrobenzene-D5		**63.5**	10.0	114.0
2-Fluorobiphenyl		**68.6**	10.0	116.0
2,4,6-Tribromophenol		**76.4**	10.0	123.0
Terphenyl-D14		**75.8**	10.0	141.0

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240520A3, Run Date: 05/20/2024 15:52, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**99.1**	80.0	124.0
1,2-Dichloroethane-D4		**109.1**	72.0	125.0
Toluene-D8		**100.5**	89.0	112.0

Organics - Volatiles, Analysis: Volatile Organics - DEQ List (Replicate 01)

Run in Batch: 240521A9, Run Date: 05/21/2024 21:07, Matrix: WW, Dilution: 10

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**106.8**	80.0	124.0
1,2-Dichloroethane-D4		**90.5**	72.0	125.0
Toluene-D8		**92.9**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S62135.02

Sample Tag: Trip Blank

Collected Date/Time: 05/15/2024 00:01

Matrix: Water

COC Reference:

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240516A7, Run Date: 05/16/2024 17:12, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**101.3**	80.0	124.0
1,2-Dichloroethane-D4		**93.5**	72.0	125.0
Toluene-D8		**98.9**	89.0	112.0

Organics - Semi-Volatiles, Prep Batch ID: SF240517W1

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: H240521B.BLKW17A

Run in Batch: H240521B, Run Date: 05/21/2024 12:46, Prep Date: 05/17/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
2-Fluorobiphenyl		**51.6**	10.0	116.0

Blank (BLK)

Lab Sample ID: P240519.BLKW17A

Run in Batch: P240519, Run Date: 05/19/2024 19:15, Prep Date: 05/17/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
2-Fluorophenol		**29.9**	10.0	110.0
Phenol-D5		**23.4**	10.0	110.0
Nitrobenzene-D5		**59.5**	10.0	114.0
2-Fluorobiphenyl		**57.5**	10.0	116.0
2,4,6-Tribromophenol		**45.7**	10.0	123.0
Terphenyl-D14		**61.1**	10.0	141.0

Laboratory Control Sample (LCS)

Lab Sample ID: H240521B.LCSW17A

Run in Batch: H240521B, Run Date: 05/21/2024 13:03, Prep Date: 05/17/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
2-Fluorobiphenyl		**53.4**	10.0	116.0

Laboratory Control Sample (LCS)

Lab Sample ID: P240519.LCSW17A

Run in Batch: P240519, Run Date: 05/19/2024 19:46, Prep Date: 05/17/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
2-Fluorophenol		**28.3**	10.0	110.0
Phenol-D5		**22.2**	10.0	110.0
Nitrobenzene-D5		**57.6**	10.0	114.0
2-Fluorobiphenyl		**58.0**	10.0	116.0
2,4,6-Tribromophenol		**52.5**	10.0	123.0
Terphenyl-D14		**64.0**	10.0	141.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: H240521B.LCSDW17A, Parent Sample ID: H240521B.LCSW17A

Run in Batch: H240521B, Run Date: 05/21/2024 13:20, Prep Date: 05/17/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
2-Fluorobiphenyl		**53.9**	10.0	116.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: P240519.LCSDW17A, Parent Sample ID: P240519.LCSW17A

Run in Batch: P240519, Run Date: 05/19/2024 20:16, Prep Date: 05/17/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
2-Fluorophenol		**28.8**	10.0	110.0
Phenol-D5		**23.1**	10.0	110.0
Nitrobenzene-D5		**58.0**	10.0	114.0
2-Fluorobiphenyl		**59.0**	10.0	116.0
2,4,6-Tribromophenol		**52.5**	10.0	123.0
Terphenyl-D14		**64.8**	10.0	141.0

Organics - Volatiles, Prep Batch ID: VD240521W1

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: K240521.BLK21A

Run in Batch: K240521, Run Date: 05/21/2024 14:52, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
No Surrogates				

Laboratory Control Sample (LCS)

Lab Sample ID: K240521.LCS21A

Run in Batch: K240521, Run Date: 05/21/2024 13:14, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
No Surrogates				

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: K240521.LCSD21A, Parent Sample ID: K240521.LCS21A

Run in Batch: K240521, Run Date: 05/21/2024 13:39, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
No Surrogates				

Matrix Spike (MS)

Lab Sample ID: K240521.6223309M, Parent Sample ID: S62233.08

Run in Batch: K240521, Run Date: 05/21/2024 22:38, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
No Surrogates				

Matrix Spike Duplicate (MSD)

Lab Sample ID: K240521.6223310N, Parent Sample ID: K240521.6223309M

Run in Batch: K240521, Run Date: 05/21/2024 23:03, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
No Surrogates				

Organics - Volatiles, Prep Batch ID: VF240516W3

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240516A7.BLKW16A

Run in Batch: 240516A7, Run Date: 05/16/2024 14:03, Prep Date: 05/16/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**98.8**	80.0	124.0
1,2-Dichloroethane-D4		**94.5**	72.0	125.0
Toluene-D8		**104.8**	89.0	112.0

Laboratory Control Sample (LCS)

Lab Sample ID: 240516A7.LCSW16A

Run in Batch: 240516A7, Run Date: 05/16/2024 12:28, Prep Date: 05/16/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**100.7**	80.0	124.0
1,2-Dichloroethane-D4		**97.6**	72.0	125.0
Toluene-D8		**100.5**	89.0	112.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240516A7.LCSDW16A, Parent Sample ID: 240516A7.LCSW16A

Run in Batch: 240516A7, Run Date: 05/16/2024 12:52, Prep Date: 05/16/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**98.8**	80.0	124.0
1,2-Dichloroethane-D4		**96.6**	72.0	125.0
Toluene-D8		**101.1**	89.0	112.0

QC Report - Surrogates per QC Sample

Organics - Volatiles, Prep Batch ID: VF240520W2

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 240520A3.BLKW20A

Run in Batch: 240520A3, Run Date: 05/20/2024 15:05, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**96.1**	80.0	124.0
1,2-Dichloroethane-D4		**103.0**	72.0	125.0
Toluene-D8		**100.3**	89.0	112.0

Laboratory Control Sample (LCS)

Lab Sample ID: 240520A3.LCSW20A

Run in Batch: 240520A3, Run Date: 05/20/2024 13:31, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**100.7**	80.0	124.0
1,2-Dichloroethane-D4		**104.8**	72.0	125.0
Toluene-D8		**100.1**	89.0	112.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240520A3.LCSDW20A, Parent Sample ID: 240520A3.LCSW20A

Run in Batch: 240520A3, Run Date: 05/20/2024 13:55, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**100.0**	80.0	124.0
1,2-Dichloroethane-D4		**105.3**	72.0	125.0
Toluene-D8		**101.1**	89.0	112.0

Matrix Spike (MS)

Lab Sample ID: 240520A3.6213724M, Parent Sample ID: S62137.23

Run in Batch: 240520A3, Run Date: 05/20/2024 22:30, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**100.0**	80.0	124.0
1,2-Dichloroethane-D4		**110.5**	72.0	125.0
Toluene-D8		**100.6**	89.0	112.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 240520A3.6213725N, Parent Sample ID: 240520A3.6213724M

Run in Batch: 240520A3, Run Date: 05/20/2024 22:54, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**100.5**	80.0	124.0
1,2-Dichloroethane-D4		**113.3**	72.0	125.0
Toluene-D8		**102.0**	89.0	112.0

Organics - Volatiles, Prep Batch ID: VF240521W1

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240521A9.BLKW21A

Run in Batch: 240521A9, Run Date: 05/21/2024 15:08, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**105.9**	80.0	124.0
1,2-Dichloroethane-D4		**88.6**	72.0	125.0
Toluene-D8		**93.0**	89.0	112.0

Laboratory Control Sample (LCS)

Lab Sample ID: 240521A9.LCSW21A

Run in Batch: 240521A9, Run Date: 05/21/2024 13:32, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**106.4**	80.0	124.0
1,2-Dichloroethane-D4		**87.1**	72.0	125.0
Toluene-D8		**92.9**	89.0	112.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240521A9.LCSDW21A, Parent Sample ID: 240521A9.LCSW21A

Run in Batch: 240521A9, Run Date: 05/21/2024 13:56, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**104.4**	80.0	124.0
1,2-Dichloroethane-D4		**87.2**	72.0	125.0
Toluene-D8		**92.4**	89.0	112.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62135.01

Sample Tag: MW-14-62_051524

Collected Date/Time: 05/15/2024 17:40

Matrix: Groundwater

COC Reference:

Organics - Semi-Volatiles, Analysis: Semi-Volatile Organics - MDEQ

Run in Batch: U240521, Run Date: 05/21/2024 19:15, Matrix: WW, Dilution: 2

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dichlorobenzene-D4		**98.7**	50.0	200.0
Naphthalene-D8		**100.8**	50.0	200.0
Acenaphthalene-D10		**102.8**	50.0	200.0
Phenanthrene-D10		**102.7**	50.0	200.0
Chrysene-D12		**102.1**	50.0	200.0
Perylene-D12		**85.7**	50.0	200.0

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240521, Run Date: 05/21/2024 22:14, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**96.2**	50.0	200.0

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240520A3, Run Date: 05/20/2024 15:52, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**86.7**	50.0	200.0
1,4-Difluorobenzene		**91.6**	50.0	200.0
Chlorobenzene-D5		**92.0**	50.0	200.0
1,4-Dichlorobenzene-D4		**89.9**	50.0	200.0

Organics - Volatiles, Analysis: Volatile Organics - DEQ List (Replicate 01)

Run in Batch: 240521A9, Run Date: 05/21/2024 21:07, Matrix: WW, Dilution: 10

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**93.9**	50.0	200.0
1,4-Difluorobenzene		**98.3**	50.0	200.0
Chlorobenzene-D5		**96.5**	50.0	200.0
1,4-Dichlorobenzene-D4		**98.2**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62135.02

Sample Tag: Trip Blank

Collected Date/Time: 05/15/2024 00:01

Matrix: Water

COC Reference:

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240516A7, Run Date: 05/16/2024 17:12, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**96.5**	50.0	200.0
1,4-Difluorobenzene		**97.6**	50.0	200.0
Chlorobenzene-D5		**93.4**	50.0	200.0
1,4-Dichlorobenzene-D4		**97.1**	50.0	200.0

Organics - Semi-Volatiles, Prep Batch ID: SF240517W1

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: H240521B.BLKW17A

Run in Batch: H240521B, Run Date: 05/21/2024 12:46, Prep Date: 05/17/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Acenaphthalene-D10		**100.7**	50.0	200.0

Blank (BLK)

Lab Sample ID: P240519.BLKW17A

Run in Batch: P240519, Run Date: 05/19/2024 19:15, Prep Date: 05/17/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dichlorobenzene-D4		**118.8**	50.0	200.0
Naphthalene-D8		**124.2**	50.0	200.0
Acenaphthalene-D10		**116.4**	50.0	200.0
Phenanthrene-D10		**102.1**	50.0	200.0
Chrysene-D12		**91.1**	50.0	200.0
Perylene-D12		**88.9**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: H240521B.LCSW17A

Run in Batch: H240521B, Run Date: 05/21/2024 13:03, Prep Date: 05/17/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Acenaphthalene-D10		**82.3**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: P240519.LCSW17A

Run in Batch: P240519, Run Date: 05/19/2024 19:46, Prep Date: 05/17/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dichlorobenzene-D4		**120.6**	50.0	200.0
Naphthalene-D8		**119.8**	50.0	200.0
Acenaphthalene-D10		**116.7**	50.0	200.0
Phenanthrene-D10		**107.9**	50.0	200.0
Chrysene-D12		**105.1**	50.0	200.0
Perylene-D12		**103.5**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: H240521B.LCSDW17A, Parent Sample ID: H240521B.LCSW17A

Run in Batch: H240521B, Run Date: 05/21/2024 13:20, Prep Date: 05/17/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Acenaphthalene-D10		**81.8**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: P240519.LCSDW17A, Parent Sample ID: P240519.LCSW17A

Run in Batch: P240519, Run Date: 05/19/2024 20:16, Prep Date: 05/17/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dichlorobenzene-D4		**118.3**	50.0	200.0
Naphthalene-D8		**117.1**	50.0	200.0
Acenaphthalene-D10		**111.4**	50.0	200.0
Phenanthrene-D10		**106.3**	50.0	200.0
Chrysene-D12		**102.6**	50.0	200.0
Perylene-D12		**105.2**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VD240521W1

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: K240521.BLK21A

Run in Batch: K240521, Run Date: 05/21/2024 14:52, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**91.3**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: K240521.LCS21A

Run in Batch: K240521, Run Date: 05/21/2024 13:14, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**88.6**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: K240521.LCSD21A, Parent Sample ID: K240521.LCS21A

Run in Batch: K240521, Run Date: 05/21/2024 13:39, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**93.5**	50.0	200.0

Matrix Spike (MS)

Lab Sample ID: K240521.6223309M, Parent Sample ID: S62233.08

Run in Batch: K240521, Run Date: 05/21/2024 22:38, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**95.5**	50.0	200.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: K240521.6223310N, Parent Sample ID: K240521.6223309M

Run in Batch: K240521, Run Date: 05/21/2024 23:03, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**100.7**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VF240516W3

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240516A7.BLKW16A

Run in Batch: 240516A7, Run Date: 05/16/2024 14:03, Prep Date: 05/16/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**98.8**	50.0	200.0
1,4-Difluorobenzene		**101.4**	50.0	200.0
Chlorobenzene-D5		**102.7**	50.0	200.0
1,4-Dichlorobenzene-D4		**104.1**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 240516A7.LCSW16A

Run in Batch: 240516A7, Run Date: 05/16/2024 12:28, Prep Date: 05/16/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**98.5**	50.0	200.0
1,4-Difluorobenzene		**99.3**	50.0	200.0
Chlorobenzene-D5		**96.7**	50.0	200.0
1,4-Dichlorobenzene-D4		**100.5**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240516A7.LCSDW16A, Parent Sample ID: 240516A7.LCSW16A

Run in Batch: 240516A7, Run Date: 05/16/2024 12:52, Prep Date: 05/16/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**98.0**	50.0	200.0
1,4-Difluorobenzene		**98.5**	50.0	200.0
Chlorobenzene-D5		**99.8**	50.0	200.0
1,4-Dichlorobenzene-D4		**100.7**	50.0	200.0

QC Report - Internal Standards per QC Sample

Organics - Volatiles, Prep Batch ID: VF240520W2

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 240520A3.BLKW20A

Run in Batch: 240520A3, Run Date: 05/20/2024 15:05, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**91.8**	50.0	200.0
1,4-Difluorobenzene		**94.7**	50.0	200.0
Chlorobenzene-D5		**94.7**	50.0	200.0
1,4-Dichlorobenzene-D4		**89.8**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 240520A3.LCSW20A

Run in Batch: 240520A3, Run Date: 05/20/2024 13:31, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**95.1**	50.0	200.0
1,4-Difluorobenzene		**95.2**	50.0	200.0
Chlorobenzene-D5		**93.8**	50.0	200.0
1,4-Dichlorobenzene-D4		**92.7**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240520A3.LCSDW20A, Parent Sample ID: 240520A3.LCSW20A

Run in Batch: 240520A3, Run Date: 05/20/2024 13:55, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**96.4**	50.0	200.0
1,4-Difluorobenzene		**96.3**	50.0	200.0
Chlorobenzene-D5		**95.4**	50.0	200.0
1,4-Dichlorobenzene-D4		**93.0**	50.0	200.0

Matrix Spike (MS)

Lab Sample ID: 240520A3.6213724M, Parent Sample ID: S62137.23

Run in Batch: 240520A3, Run Date: 05/20/2024 22:30, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**89.3**	50.0	200.0
1,4-Difluorobenzene		**94.2**	50.0	200.0
Chlorobenzene-D5		**93.4**	50.0	200.0
1,4-Dichlorobenzene-D4		**91.4**	50.0	200.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 240520A3.6213725N, Parent Sample ID: 240520A3.6213724M

Run in Batch: 240520A3, Run Date: 05/20/2024 22:54, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**87.4**	50.0	200.0
1,4-Difluorobenzene		**91.1**	50.0	200.0
Chlorobenzene-D5		**92.5**	50.0	200.0
1,4-Dichlorobenzene-D4		**92.3**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VF240521W1

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240521A9.BLKW21A

Run in Batch: 240521A9, Run Date: 05/21/2024 15:08, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**98.5**	50.0	200.0
1,4-Difluorobenzene		**101.8**	50.0	200.0
Chlorobenzene-D5		**99.8**	50.0	200.0
1,4-Dichlorobenzene-D4		**100.7**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 240521A9.LCSW21A

Run in Batch: 240521A9, Run Date: 05/21/2024 13:32, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**99.3**	50.0	200.0
1,4-Difluorobenzene		**98.7**	50.0	200.0
Chlorobenzene-D5		**99.3**	50.0	200.0
1,4-Dichlorobenzene-D4		**100.9**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240521A9.LCSDW21A, Parent Sample ID: 240521A9.LCSW21A

Run in Batch: 240521A9, Run Date: 05/21/2024 13:56, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**100.9**	50.0	200.0
1,4-Difluorobenzene		**101.3**	50.0	200.0
Chlorobenzene-D5		**102.0**	50.0	200.0
1,4-Dichlorobenzene-D4		**102.6**	50.0	200.0

Organics - Semi-Volatiles, Prep Batch ID: SF240517W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: P240519.BLKW17A

Run in Batch: P240519, Run Date: 05/19/2024 19:15, Prep Date: 05/17/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Acenaphthene		ND	0.50	ug/l
Acenaphthylene		ND	0.50	ug/l
Anthracene		ND	0.50	ug/l
Benzo(a)anthracene		ND	0.50	ug/l
Benzo(b)fluoranthene		ND	0.50	ug/l
Benzo(k)fluoranthene		ND	0.50	ug/l
Benzo(ghi)perylene		ND	0.50	ug/l
Benzo(a)pyrene		ND	0.50	ug/l
bis(2-Chloroethoxy)methane		ND	0.50	ug/l
bis(2-Chloroethyl)ether		ND	0.50	ug/l
bis(2-Chloroisopropyl)ether		ND	0.50	ug/l
bis(2-Ethylhexyl)phthalate		ND	0.50	ug/l
4-Bromophenyl phenyl ether		ND	0.50	ug/l
Butyl benzyl phthalate		ND	0.50	ug/l
4-Chloroaniline		ND	0.50	ug/l
2-Chloronaphthalene		ND	0.50	ug/l
4-Chloro-3-methylphenol		ND	0.50	ug/l
2-Chlorophenol		ND	0.50	ug/l
4-Chlorophenyl phenyl ether		ND	0.50	ug/l
Chrysene		ND	0.50	ug/l
3-, 4-Methylphenol (p,m-Cresol)		ND	0.50	ug/l
2-Methylphenol (o-Cresol)		ND	0.50	ug/l
Dibenzo(ah)anthracene		ND	0.50	ug/l
Dibenzofuran		ND	0.50	ug/l
di-n-Butyl phthalate		ND	0.50	ug/l
1,2-Dichlorobenzene		ND	0.50	ug/l
1,3-Dichlorobenzene		ND	0.50	ug/l
1,4-Dichlorobenzene		ND	0.50	ug/l
3,3'-Dichlorobenzidine		ND	0.50	ug/l
2,4-Dichlorophenol		ND	0.50	ug/l
Diethyl phthalate		ND	0.50	ug/l
2,4-Dimethylphenol		ND	0.50	ug/l
Dimethyl phthalate		ND	0.50	ug/l
4,6-Dinitro-2-methylphenol		ND	0.50	ug/l
2,4-Dinitrophenol		ND	0.50	ug/l
2,4-Dinitrotoluene		ND	0.50	ug/l
2,6-Dinitrotoluene		ND	0.50	ug/l
1,2-Diphenylhydrazine		ND	0.50	ug/l
di-n-Octyl phthalate		ND	0.50	ug/l
Fluoranthene		ND	0.50	ug/l
Fluorene		ND	0.50	ug/l
Hexachlorobenzene		ND	0.50	ug/l
Hexachlorobutadiene		ND	0.50	ug/l
Hexachlorocyclopentadiene		ND	0.50	ug/l
Hexachloroethane		ND	0.50	ug/l
Indeno(1,2,3-cd)pyrene		ND	0.50	ug/l

Organics - Semi-Volatiles, Prep Batch ID: SF240517W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK) (continued)

Lab Sample ID: P240519.BLKW17A

Run in Batch: P240519, Run Date: 05/19/2024 19:15, Prep Date: 05/17/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Isophorone		ND	0.50	ug/l
2-Methylnaphthalene		ND	0.50	ug/l
Naphthalene		ND	0.50	ug/l
2-Nitroaniline		ND	0.50	ug/l
3-Nitroaniline		ND	0.50	ug/l
4-Nitroaniline		ND	0.50	ug/l
Nitrobenzene		ND	0.50	ug/l
2-Nitrophenol		ND	0.50	ug/l
4-Nitrophenol		ND	0.50	ug/l
N-Nitrosodiphenylamine		ND	0.50	ug/l
N-Nitrosodi-n-propylamine		ND	0.50	ug/l
Pentachlorophenol		ND	0.50	ug/l
Phenanthrene		ND	0.50	ug/l
Phenol		ND	0.50	ug/l
Pyrene		ND	0.50	ug/l
1,2,4-Trichlorobenzene		ND	0.50	ug/l
2,4,5-Trichlorophenol		ND	0.50	ug/l
2,4,6-Trichlorophenol		ND	0.50	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: P240519.LCSW17A

Run in Batch: P240519, Run Date: 05/19/2024 19:46, Prep Date: 05/17/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Acenaphthene		55.1	27	111
Acenaphthylene		55.9	16	116
Anthracene		61.3	31	119
Benzo(a)anthracene		60.5	35	119
Benzo(b)fluoranthene		61.5	27	129
Benzo(k)fluoranthene		59.2	36	120
Benzo(ghi)perylene		60.0	31	126
Benzo(a)pyrene		60.6	32	121
bis(2-Chloroethoxy)methane		55.2	23	106
bis(2-Chloroethyl)ether		50.3	29	94
bis(2-Chloroisopropyl)ether		51.5	23	91
bis(2-Ethylhexyl)phthalate		63.8	35	121
4-Bromophenyl phenyl ether		59.5	27	122
Butyl benzyl phthalate		58.6	36	117
4-Chloroaniline		42.7	19	91
2-Chloronaphthalene		55.2	21	109
4-Chloro-3-methylphenol		54.2	36	105
2-Chlorophenol		43.9	24	94
4-Chlorophenyl phenyl ether		57.8	31	114
Chrysene		59.0	34	119
3-, 4-Methylphenol (p,m-Cresol)		38.0	21	90
2-Methylphenol (o-Cresol)		40.2	23	79
Dibenzo(ah)anthracene		62.9	32	119

Organics - Semi-Volatiles, Prep Batch ID: SF240517W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: P240519.LCSW17A

Run in Batch: P240519, Run Date: 05/19/2024 19:46, Prep Date: 05/17/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Dibenzofuran		57.3	29	115
di-n-Butyl phthalate		62.4	34	121
1,2-Dichlorobenzene		41.9	11	88
1,3-Dichlorobenzene		38.5	10	85
1,4-Dichlorobenzene		39.7	10	85
3,3'-Dichlorobenzidine		49.8	27	110
2,4-Dichlorophenol		54.4	33	106
Diethyl phthalate		55.7	36	116
2,4-Dimethylphenol		49.8	30	105
Dimethyl phthalate		56.9	35	116
4,6-Dinitro-2-methylphenol		52.1	19	116
2,4-Dinitrophenol		54.2	10	125
2,4-Dinitrotoluene		54.0	33	119
2,6-Dinitrotoluene		54.4	34	117
1,2-Diphenylhydrazine		61.1	34	113
di-n-Octyl phthalate		61.2	30	133
Fluoranthene		62.3	35	121
Fluorene		58.3	32	114
Hexachlorobenzene		57.7	26	126
Hexachlorobutadiene		39.8	10	95
Hexachlorocyclopentadiene		43.5	10	90
Hexachloroethane		37.2	10	82
Indeno(1,2,3-cd)pyrene		62.1	31	124
Isophorone		57.1	26	104
2-Methylnaphthalene		52.0	21	103
Naphthalene		49.6	21	99
2-Nitroaniline		53.7	34	111
3-Nitroaniline		42.0	34	111
4-Nitroaniline		48.7	34	100
Nitrobenzene		54.4	30	98
2-Nitrophenol		54.6	31	108
4-Nitrophenol		27.2	10	90
N-Nitrosodiphenylamine		60.7	31	120
N-Nitrosodi-n-propylamine		55.3	33	102
Pentachlorophenol		48.6	10	108
Phenanthrene		59.6	35	113
Phenol		21.3	10	43
Pyrene		59.9	33	120
1,2,4-Trichlorobenzene		45.1	10	98
2,4,5-Trichlorophenol		56.7	31	120
2,4,6-Trichlorophenol		59.4	31	114

Organics - Semi-Volatiles, Prep Batch ID: SF240517W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: P240519.LCSDW17A, Parent Sample ID: P240519.LCSW17A

Run in Batch: P240519, Run Date: 05/19/2024 20:16, Prep Date: 05/17/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Acenaphthene		58.8	27	111	6.6	30.0
Acenaphthylene		58.0	16	116	3.8	30.0
Anthracene		59.7	31	119	2.6	30.0
Benzo(a)anthracene		60.7	35	119	0.3	30.0
Benzo(b)fluoranthene		60.0	27	129	2.4	30.0
Benzo(k)fluoranthene		58.2	36	120	1.6	30.0
Benzo(ghi)perylene		59.0	31	126	1.6	30.0
Benzo(a)pyrene		59.1	32	121	2.4	30.0
bis(2-Chloroethoxy)methane		56.3	23	106	1.9	30.0
bis(2-Chloroethyl)ether		51.3	29	94	1.9	30.0
bis(2-Chloroisopropyl)ether		51.9	23	91	0.7	30.0
bis(2-Ethylhexyl)phthalate		64.9	35	121	1.6	30.0
4-Bromophenyl phenyl ether		58.7	27	122	1.4	30.0
Butyl benzyl phthalate		58.8	36	117	0.5	30.0
4-Chloroaniline		42.9	19	91	0.4	30.0
2-Chloronaphthalene		55.8	21	109	1.1	30.0
4-Chloro-3-methylphenol		54.6	36	105	0.9	30.0
2-Chlorophenol		45.1	24	94	2.7	30.0
4-Chlorophenyl phenyl ether		59.2	31	114	2.4	30.0
Chrysene		61.5	34	119	4.1	30.0
3-, 4-Methylphenol (p,m-Cresol)		39.3	21	90	3.6	30.0
2-Methylphenol (o-Cresol)		40.8	23	79	1.6	30.0
Dibenzo(ah)anthracene		60.8	32	119	3.3	30.0
Dibenzofuran		59.0	29	115	2.8	30.0
di-n-Butyl phthalate		62.7	34	121	0.5	30.0
1,2-Dichlorobenzene		42.2	11	88	0.7	30.0
1,3-Dichlorobenzene		39.2	10	85	1.9	30.0
1,4-Dichlorobenzene		40.3	10	85	1.6	30.0
3,3'-Dichlorobenzidine		50.7	27	110	1.8	30.0
2,4-Dichlorophenol		56.1	33	106	2.9	30.0
Diethyl phthalate		58.5	36	116	4.9	30.0
2,4-Dimethylphenol		50.8	30	105	2.1	30.0
Dimethyl phthalate		59.4	35	116	4.3	30.0
4,6-Dinitro-2-methylphenol		54.3	19	116	4.2	30.0
2,4-Dinitrophenol		59.2	10	125	8.8	30.0
2,4-Dinitrotoluene		57.1	33	119	5.5	30.0
2,6-Dinitrotoluene		55.6	34	117	2.2	30.0
1,2-Diphenylhydrazine		61.5	34	113	0.7	30.0
di-n-Octyl phthalate		61.0	30	133	0.4	30.0
Fluoranthene		62.1	35	121	0.3	30.0
Fluorene		59.8	32	114	2.6	30.0
Hexachlorobenzene		57.8	26	126	0.2	30.0
Hexachlorobutadiene		42.4	10	95	6.2	30.0
Hexachlorocyclopentadiene		42.5	10	90	2.4	30.0
Hexachloroethane		37.5	10	82	0.7	30.0
Indeno(1,2,3-cd)pyrene		59.6	31	124	4.0	30.0

Organics - Semi-Volatiles, Prep Batch ID: SF240517W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: P240519.LCSDW17A, Parent Sample ID: P240519.LCSW17A

Run in Batch: P240519, Run Date: 05/19/2024 20:16, Prep Date: 05/17/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Isophorone		57.5	26	104	0.8	30.0
2-Methylnaphthalene		53.1	21	103	2.1	30.0
Naphthalene		51.3	21	99	3.3	30.0
2-Nitroaniline		56.9	34	111	5.9	30.0
3-Nitroaniline		43.8	34	111	4.2	30.0
4-Nitroaniline		50.4	34	100	3.4	30.0
Nitrobenzene		55.9	30	98	2.8	30.0
2-Nitrophenol		56.1	31	108	2.6	30.0
4-Nitrophenol		29.8	10	90	9.1	30.0
N-Nitrosodiphenylamine		59.3	31	120	2.3	30.0
N-Nitrosodi-n-propylamine		55.8	33	102	0.9	30.0
Pentachlorophenol		49.9	10	108	2.8	30.0
Phenanthrene		60.0	35	113	0.7	30.0
Phenol		22.3	10	43	4.7	30.0
Pyrene		60.1	33	120	0.3	30.0
1,2,4-Trichlorobenzene		46.6	10	98	3.1	30.0
2,4,5-Trichlorophenol		58.6	31	120	3.3	30.0
2,4,6-Trichlorophenol		60.6	31	114	1.9	30.0

Organics - Volatiles, Prep Batch ID: VD240521W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: K240521.BLK21A

Run in Batch: K240521, Run Date: 05/21/2024 14:52, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
1,4-Dioxane	*	0.0312	0.02	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: K240521.LCS21A

Run in Batch: K240521, Run Date: 05/21/2024 13:14, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		104.0	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: K240521.LCSD21A, Parent Sample ID: K240521.LCS21A

Run in Batch: K240521, Run Date: 05/21/2024 13:39, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		108.1	70.0	130.0	3.8	30.0

Matrix Spike (MS)

Lab Sample ID: K240521.6223309M, Parent Sample ID: S62233.08

Run in Batch: K240521, Run Date: 05/21/2024 22:38, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		85.2	70.0	130.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: K240521.6223310N, Parent Sample ID: K240521.6223309M

Run in Batch: K240521, Run Date: 05/21/2024 23:03, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		113.9	70.0	130.0	18.2	30.0

Organics - Volatiles, Prep Batch ID: VF240516W3

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240516A7.BLKW16A

Run in Batch: 240516A7, Run Date: 05/16/2024 14:03, Prep Date: 05/16/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Diethyl ether		ND	1.00	ug/l
Acetone		ND	10.00	ug/l
Methyl iodide		ND	1.00	ug/l
Carbon disulfide		ND	1.00	ug/l
tert-Methyl butyl ether (MTBE)		ND	1.00	ug/l
Acrylonitrile		ND	1.00	ug/l
2-Butanone (MEK)		ND	10.00	ug/l
Dichlorodifluoromethane		ND	1.00	ug/l
Chloromethane		ND	1.00	ug/l
Vinyl chloride		ND	1.00	ug/l
Bromomethane		ND	1.00	ug/l
Chloroethane		ND	1.00	ug/l
Trichlorofluoromethane		ND	1.00	ug/l
1,1-Dichloroethene		ND	1.00	ug/l
Methylene chloride		ND	1.00	ug/l
trans-1,2-Dichloroethene		ND	1.00	ug/l
1,1-Dichloroethane		ND	1.00	ug/l
cis-1,2-Dichloroethene		ND	1.00	ug/l
Tetrahydrofuran		ND	10.00	ug/l
Chloroform	J*	0.2569	1.00	ug/l
Bromochloromethane		ND	1.00	ug/l
1,1,1-Trichloroethane		ND	1.00	ug/l
4-Methyl-2-pentanone (MIBK)		ND	10.00	ug/l
2-Hexanone		ND	10.00	ug/l
Carbon tetrachloride		ND	1.00	ug/l
Benzene		ND	1.00	ug/l
1,2-Dichloroethane		ND	1.00	ug/l
Trichloroethene		ND	1.00	ug/l
1,2-Dichloropropane		ND	1.00	ug/l
Bromodichloromethane		ND	1.00	ug/l
Dibromomethane		ND	1.00	ug/l
cis-1,3-Dichloropropene		ND	1.00	ug/l
Toluene		ND	1.00	ug/l
trans-1,3-Dichloropropene		ND	1.00	ug/l
1,1,2-Trichloroethane		ND	1.00	ug/l
Tetrachloroethene		ND	1.00	ug/l
trans-1,4-Dichloro-2-butene		ND	1.00	ug/l
Dibromochloromethane		ND	1.00	ug/l
1,2-Dibromoethane		ND	1.00	ug/l
Chlorobenzene		ND	1.00	ug/l
1,1,1,2-Tetrachloroethane		ND	1.00	ug/l
Ethylbenzene		ND	1.00	ug/l
p,m-Xylene		ND	2.00	ug/l
o-Xylene		ND	1.00	ug/l
Styrene		ND	1.00	ug/l
Isopropylbenzene		ND	1.00	ug/l

Organics - Volatiles, Prep Batch ID: VF240516W3 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK) (continued)

Lab Sample ID: 240516A7.BLKW16A

Run in Batch: 240516A7, Run Date: 05/16/2024 14:03, Prep Date: 05/16/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Bromoform		ND	1.00	ug/l
1,1,2,2-Tetrachloroethane		ND	1.00	ug/l
1,2,3-Trichloropropane		ND	1.00	ug/l
n-Propylbenzene		ND	1.00	ug/l
Bromobenzene		ND	1.00	ug/l
1,3,5-Trimethylbenzene		ND	1.00	ug/l
tert-Butylbenzene		ND	1.00	ug/l
1,2,4-Trimethylbenzene		ND	1.00	ug/l
sec-Butylbenzene		ND	1.00	ug/l
p-Isopropyltoluene		ND	1.00	ug/l
1,3-Dichlorobenzene		ND	1.00	ug/l
1,4-Dichlorobenzene		ND	1.00	ug/l
1,2-Dichlorobenzene		ND	1.00	ug/l
1,2,3-Trimethylbenzene		ND	1.00	ug/l
n-Butylbenzene		ND	1.00	ug/l
Hexachloroethane		ND	1.00	ug/l
1,2-Dibromo-3-chloropropane		ND	1.00	ug/l
1,2,4-Trichlorobenzene		ND	1.00	ug/l
1,2,3-Trichlorobenzene		ND	1.00	ug/l
Naphthalene		ND	1.00	ug/l
2-Methylnaphthalene		ND	1.00	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 240516A7.LCSW16A

Run in Batch: 240516A7, Run Date: 05/16/2024 12:28, Prep Date: 05/16/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Diethyl ether		104.1	67.4	121.2
Acetone		117.7	29.9	161.5
Methyl iodide		114.9	68.8	116.4
Carbon disulfide		107.4	63.8	137.4
tert-Methyl butyl ether (MTBE)		107.9	73.2	122.4
Acrylonitrile		108.9	69.9	128.9
2-Butanone (MEK)		103.5	44.0	134.4
Dichlorodifluoromethane		90.2	10.0	222.8
Chloromethane		124.1	23.8	166.5
Vinyl chloride		112.8	43.5	149.1
Bromomethane		130.3	56.8	151.3
Chloroethane		115.4	53.4	149.4
Trichlorofluoromethane		113.1	59.7	151.8
1,1-Dichloroethene		105.9	69.6	139.4
Methylene chloride		104.7	73.3	121.1
trans-1,2-Dichloroethene		100.2	73.6	129.3
1,1-Dichloroethane		101.0	71.5	126.2
cis-1,2-Dichloroethene		103.4	76.6	122.1
Tetrahydrofuran		104.7	59.0	117.9
Chloroform		99.1	78.4	124.0

Organics - Volatiles, Prep Batch ID: VF240516W3 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 240516A7.LCSW16A

Run in Batch: 240516A7, Run Date: 05/16/2024 12:28, Prep Date: 05/16/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Bromochloromethane		104.5	78.2	120.8
1,1,1-Trichloroethane		100.5	79.4	130.9
4-Methyl-2-pentanone (MIBK)		110.1	71.6	125.2
2-Hexanone		109.3	55.4	136.9
Carbon tetrachloride		99.5	72.6	133.0
Benzene		99.0	79.9	124.9
1,2-Dichloroethane		97.3	76.0	126.3
Trichloroethene		96.3	79.7	124.2
1,2-Dichloropropane		99.5	78.6	126.4
Bromodichloromethane		103.5	80.4	128.2
Dibromomethane		102.5	76.9	122.1
cis-1,3-Dichloropropene		102.4	79.8	129.9
Toluene		97.7	79.8	124.5
trans-1,3-Dichloropropene		103.3	74.0	131.3
1,1,2-Trichloroethane		99.3	78.7	123.1
Tetrachloroethene		94.6	74.5	124.5
trans-1,4-Dichloro-2-butene		113.4	68.6	135.4
Dibromochloromethane		105.6	74.6	127.2
1,2-Dibromoethane		100.2	70.3	133.7
Chlorobenzene		99.3	79.2	122.7
1,1,1,2-Tetrachloroethane		105.5	80.3	128.2
Ethylbenzene		99.2	79.5	129.1
p,m-Xylene		99.7	79.4	132.2
o-Xylene		102.2	80.2	131.0
Styrene		101.5	69.5	126.7
Isopropylbenzene		99.8	74.4	121.5
Bromoform		105.9	69.4	128.0
1,1,2,2-Tetrachloroethane		104.2	79.8	126.3
1,2,3-Trichloropropane		102.8	78.3	138.8
n-Propylbenzene		99.0	82.0	130.7
Bromobenzene		101.4	78.7	124.6
1,3,5-Trimethylbenzene		101.9	81.3	128.9
tert-Butylbenzene		98.9	80.7	128.9
1,2,4-Trimethylbenzene		101.4	81.4	130.8
sec-Butylbenzene		97.4	77.4	129.8
p-Isopropyltoluene		100.1	79.8	137.5
1,3-Dichlorobenzene		99.2	77.0	131.3
1,4-Dichlorobenzene		97.4	20.7	137.7
1,2-Dichlorobenzene		100.6	10.0	166.2
1,2,3-Trimethylbenzene		108.8	76.3	124.2
n-Butylbenzene		98.9	80.0	133.3
Hexachloroethane		114.1	23.8	138.1
1,2-Dibromo-3-chloropropane		97.9	21.2	189.4
1,2,4-Trichlorobenzene		108.7	27.4	143.4
1,2,3-Trichlorobenzene		110.0	75.4	131.4
Naphthalene		117.2	32.9	135.8

Organics - Volatiles, Prep Batch ID: VF240516W3 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 240516A7.LCSW16A

Run in Batch: 240516A7, Run Date: 05/16/2024 12:28, Prep Date: 05/16/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
2-Methylnaphthalene		133.9	25.5	165.5

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240516A7.LCSDW16A, Parent Sample ID: 240516A7.LCSW16A

Run in Batch: 240516A7, Run Date: 05/16/2024 12:52, Prep Date: 05/16/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Diethyl ether		100.8	67.4	121.2	3.2	30.0
Acetone		107.8	29.9	161.5	8.8	30.0
Methyl iodide		107.9	68.8	116.4	6.3	30.0
Carbon disulfide		97.8	63.8	137.4	9.3	30.0
tert-Methyl butyl ether (MTBE)		108.7	73.2	122.4	0.8	30.0
Acrylonitrile		103.9	69.9	128.9	4.7	30.0
2-Butanone (MEK)		102.6	44.0	134.4	0.8	30.0
Dichlorodifluoromethane		85.3	10.0	222.8	5.6	30.0
Chloromethane		117.5	23.8	166.5	5.5	30.0
Vinyl chloride		104.3	43.5	149.1	7.8	30.0
Bromomethane		125.1	56.8	151.3	4.1	30.0
Chloroethane		109.3	53.4	149.4	5.4	30.0
Trichlorofluoromethane		105.6	59.7	151.8	6.9	30.0
1,1-Dichloroethene		97.8	69.6	139.4	8.0	30.0
Methylene chloride		106.6	73.3	121.1	1.8	30.0
trans-1,2-Dichloroethene		97.9	73.6	129.3	2.3	30.0
1,1-Dichloroethane		100.7	71.5	126.2	0.3	30.0
cis-1,2-Dichloroethene		103.4	76.6	122.1	0.0	30.0
Tetrahydrofuran		99.2	59.0	117.9	5.4	30.0
Chloroform		99.1	78.4	124.0	0.0	30.0
Bromochloromethane		106.5	78.2	120.8	1.9	30.0
1,1,1-Trichloroethane		97.7	79.4	130.9	2.9	30.0
4-Methyl-2-pentanone (MIBK)		107.3	71.6	125.2	2.5	30.0
2-Hexanone		113.0	55.4	136.9	3.4	30.0
Carbon tetrachloride		96.8	72.6	133.0	2.7	30.0
Benzene		98.4	79.9	124.9	0.6	30.0
1,2-Dichloroethane		99.0	76.0	126.3	1.8	30.0
Trichloroethene		95.1	79.7	124.2	1.2	30.0
1,2-Dichloropropane		100.5	78.6	126.4	1.0	30.0
Bromodichloromethane		105.8	80.4	128.2	2.2	30.0
Dibromomethane		103.1	76.9	122.1	0.6	30.0
cis-1,3-Dichloropropene		104.4	79.8	129.9	2.0	30.0
Toluene		97.4	79.8	124.5	0.3	30.0
trans-1,3-Dichloropropene		105.9	74.0	131.3	2.4	30.0
1,1,2-Trichloroethane		100.7	78.7	123.1	1.4	30.0
Tetrachloroethene		94.2	74.5	124.5	0.4	30.0
trans-1,4-Dichloro-2-butene		111.9	68.6	135.4	1.3	30.0
Dibromochloromethane		106.8	74.6	127.2	1.2	30.0
1,2-Dibromoethane		102.7	70.3	133.7	2.4	30.0
Chlorobenzene		98.3	79.2	122.7	1.0	30.0

Organics - Volatiles, Prep Batch ID: VF240516W3 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: 240516A7.LCSDW16A, Parent Sample ID: 240516A7.LCSW16A

Run in Batch: 240516A7, Run Date: 05/16/2024 12:52, Prep Date: 05/16/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,1,1,2-Tetrachloroethane		107.5	80.3	128.2	1.8	30.0
Ethylbenzene		97.2	79.5	129.1	2.0	30.0
p,m-Xylene		98.9	79.4	132.2	0.9	30.0
o-Xylene		102.4	80.2	131.0	0.3	30.0
Styrene		102.9	69.5	126.7	1.4	30.0
Isopropylbenzene		96.7	74.4	121.5	3.2	30.0
Bromoform		106.2	69.4	128.0	0.3	30.0
1,1,2,2-Tetrachloroethane		103.7	79.8	126.3	0.6	30.0
1,2,3-Trichloropropane		99.5	78.3	138.8	3.2	30.0
n-Propylbenzene		97.2	82.0	130.7	1.9	30.0
Bromobenzene		100.1	78.7	124.6	1.2	30.0
1,3,5-Trimethylbenzene		100.0	81.3	128.9	1.9	30.0
tert-Butylbenzene		95.6	80.7	128.9	3.3	30.0
1,2,4-Trimethylbenzene		99.4	81.4	130.8	2.0	30.0
sec-Butylbenzene		98.1	77.4	129.8	0.7	30.0
p-Isopropyltoluene		100.3	79.8	137.5	0.2	30.0
1,3-Dichlorobenzene		102.5	77.0	131.3	3.3	30.0
1,4-Dichlorobenzene		100.3	20.7	137.7	2.9	30.0
1,2-Dichlorobenzene		105.4	10.0	166.2	4.6	30.0
1,2,3-Trimethylbenzene		113.6	76.3	124.2	4.3	30.0
n-Butylbenzene		100.2	80.0	133.3	1.3	30.0
Hexachloroethane		113.0	23.8	138.1	0.9	30.0
1,2-Dibromo-3-chloropropane		94.6	21.2	189.4	3.4	30.0
1,2,4-Trichlorobenzene		110.4	27.4	143.4	1.6	30.0
1,2,3-Trichlorobenzene		111.7	75.4	131.4	1.5	30.0
Naphthalene		114.6	32.9	135.8	2.3	30.0
2-Methylnaphthalene		126.9	25.5	165.5	5.4	30.0

Organics - Volatiles, Prep Batch ID: VF240520W2

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 240520A3.BLKW20A

Run in Batch: 240520A3, Run Date: 05/20/2024 15:05, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Diethyl ether		ND	1.00	ug/l
Acetone		ND	10.00	ug/l
Methyl iodide		ND	1.00	ug/l
Carbon disulfide		ND	1.00	ug/l
tert-Methyl butyl ether (MTBE)		ND	1.00	ug/l
Acrylonitrile		ND	1.00	ug/l
2-Butanone (MEK)		ND	10.00	ug/l
Dichlorodifluoromethane		ND	1.00	ug/l
Chloromethane		ND	1.00	ug/l
Vinyl chloride		ND	1.00	ug/l
Bromomethane		ND	1.00	ug/l
Chloroethane		ND	1.00	ug/l
Trichlorofluoromethane		ND	1.00	ug/l
1,1-Dichloroethene		ND	1.00	ug/l
Methylene chloride		ND	1.00	ug/l
trans-1,2-Dichloroethene		ND	1.00	ug/l
1,1-Dichloroethane		ND	1.00	ug/l
cis-1,2-Dichloroethene		ND	1.00	ug/l
Tetrahydrofuran		ND	10.00	ug/l
Chloroform		ND	1.00	ug/l
Bromochloromethane		ND	1.00	ug/l
1,1,1-Trichloroethane		ND	1.00	ug/l
4-Methyl-2-pentanone (MIBK)		ND	10.00	ug/l
2-Hexanone		ND	10.00	ug/l
Carbon tetrachloride		ND	1.00	ug/l
Benzene		ND	1.00	ug/l
1,2-Dichloroethane		ND	1.00	ug/l
Trichloroethene		ND	1.00	ug/l
1,2-Dichloropropane		ND	1.00	ug/l
Bromodichloromethane		ND	1.00	ug/l
Dibromomethane		ND	1.00	ug/l
cis-1,3-Dichloropropene		ND	1.00	ug/l
Toluene		ND	1.00	ug/l
trans-1,3-Dichloropropene		ND	1.00	ug/l
1,1,2-Trichloroethane		ND	1.00	ug/l
Tetrachloroethene		ND	1.00	ug/l
trans-1,4-Dichloro-2-butene		ND	1.00	ug/l
Dibromochloromethane		ND	1.00	ug/l
1,2-Dibromoethane		ND	1.00	ug/l
Chlorobenzene		ND	1.00	ug/l
1,1,1,2-Tetrachloroethane		ND	1.00	ug/l
Ethylbenzene		ND	1.00	ug/l
p,m-Xylene		ND	2.00	ug/l
o-Xylene		ND	1.00	ug/l
Styrene		ND	1.00	ug/l
Isopropylbenzene		ND	1.00	ug/l

Organics - Volatiles, Prep Batch ID: VF240520W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK) (continued)

Lab Sample ID: 240520A3.BLKW20A

Run in Batch: 240520A3, Run Date: 05/20/2024 15:05, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Bromoform		ND	1.00	ug/l
1,1,2,2-Tetrachloroethane		ND	1.00	ug/l
1,2,3-Trichloropropane		ND	1.00	ug/l
n-Propylbenzene		ND	1.00	ug/l
Bromobenzene		ND	1.00	ug/l
1,3,5-Trimethylbenzene		ND	1.00	ug/l
tert-Butylbenzene		ND	1.00	ug/l
1,2,4-Trimethylbenzene		ND	1.00	ug/l
sec-Butylbenzene		ND	1.00	ug/l
p-Isopropyltoluene		ND	1.00	ug/l
1,3-Dichlorobenzene		ND	1.00	ug/l
1,4-Dichlorobenzene		ND	1.00	ug/l
1,2-Dichlorobenzene		ND	1.00	ug/l
1,2,3-Trimethylbenzene		ND	1.00	ug/l
n-Butylbenzene		ND	1.00	ug/l
Hexachloroethane		ND	1.00	ug/l
1,2-Dibromo-3-chloropropane		ND	1.00	ug/l
1,2,4-Trichlorobenzene		ND	1.00	ug/l
1,2,3-Trichlorobenzene		ND	1.00	ug/l
Naphthalene		ND	1.00	ug/l
2-Methylnaphthalene		ND	1.00	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 240520A3.LCSW20A

Run in Batch: 240520A3, Run Date: 05/20/2024 13:31, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Diethyl ether		110.7	67.4	121.2
Acetone		110.5	29.9	161.5
Methyl iodide		111.2	68.8	116.4
Carbon disulfide		107.2	63.8	137.4
tert-Methyl butyl ether (MTBE)		114.6	73.2	122.4
Acrylonitrile		111.4	69.9	128.9
2-Butanone (MEK)		99.1	44.0	134.4
Dichlorodifluoromethane		110.5	10.0	222.8
Chloromethane		111.3	23.8	166.5
Vinyl chloride		113.2	43.5	149.1
Bromomethane		112.7	56.8	151.3
Chloroethane		115.5	53.4	149.4
Trichlorofluoromethane		114.2	59.7	151.8
1,1-Dichloroethene		110.2	69.6	139.4
Methylene chloride		110.9	73.3	121.1
trans-1,2-Dichloroethene		110.3	73.6	129.3
1,1-Dichloroethane		112.6	71.5	126.2
cis-1,2-Dichloroethene		111.9	76.6	122.1
Tetrahydrofuran		97.5	59.0	117.9
Chloroform		108.4	78.4	124.0

Organics - Volatiles, Prep Batch ID: VF240520W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 240520A3.LCSW20A

Run in Batch: 240520A3, Run Date: 05/20/2024 13:31, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Bromochloromethane		112.1	78.2	120.8
1,1,1-Trichloroethane		112.3	79.4	130.9
4-Methyl-2-pentanone (MIBK)		103.2	71.6	125.2
2-Hexanone		106.5	55.4	136.9
Carbon tetrachloride		108.3	72.6	133.0
Benzene		107.5	79.9	124.9
1,2-Dichloroethane		106.9	76.0	126.3
Trichloroethene		106.4	79.7	124.2
1,2-Dichloropropane		108.0	78.6	126.4
Bromodichloromethane		98.3	80.4	128.2
Dibromomethane		107.7	76.9	122.1
cis-1,3-Dichloropropene		112.1	79.8	129.9
Toluene		109.0	79.8	124.5
trans-1,3-Dichloropropene		111.5	74.0	131.3
1,1,2-Trichloroethane		108.8	78.7	123.1
Tetrachloroethene		108.3	74.5	124.5
trans-1,4-Dichloro-2-butene		119.8	68.6	135.4
Dibromochloromethane		111.9	74.6	127.2
1,2-Dibromoethane		109.6	70.3	133.7
Chlorobenzene		109.6	79.2	122.7
1,1,1,2-Tetrachloroethane		111.3	80.3	128.2
Ethylbenzene		108.7	79.5	129.1
p,m-Xylene		109.9	79.4	132.2
o-Xylene		109.4	80.2	131.0
Styrene		112.3	69.5	126.7
Isopropylbenzene		109.7	74.4	121.5
Bromoform		111.3	69.4	128.0
1,1,2,2-Tetrachloroethane		108.1	79.8	126.3
1,2,3-Trichloropropane		107.0	78.3	138.8
n-Propylbenzene		111.7	82.0	130.7
Bromobenzene		109.2	78.7	124.6
1,3,5-Trimethylbenzene		109.7	81.3	128.9
tert-Butylbenzene		109.3	80.7	128.9
1,2,4-Trimethylbenzene		110.7	81.4	130.8
sec-Butylbenzene		112.4	77.4	129.8
p-Isopropyltoluene		112.1	79.8	137.5
1,3-Dichlorobenzene		110.7	77.0	131.3
1,4-Dichlorobenzene		110.3	20.7	137.7
1,2-Dichlorobenzene		110.7	10.0	166.2
1,2,3-Trimethylbenzene		109.9	76.3	124.2
n-Butylbenzene		112.0	80.0	133.3
Hexachloroethane		117.9	23.8	138.1
1,2-Dibromo-3-chloropropane		112.4	21.2	189.4
1,2,4-Trichlorobenzene		116.2	27.4	143.4
1,2,3-Trichlorobenzene		116.8	75.4	131.4
Naphthalene		116.5	32.9	135.8

Organics - Volatiles, Prep Batch ID: VF240520W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 240520A3.LCSW20A

Run in Batch: 240520A3, Run Date: 05/20/2024 13:31, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
2-Methylnaphthalene		117.5	25.5	165.5

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240520A3.LCSDW20A, Parent Sample ID: 240520A3.LCSW20A

Run in Batch: 240520A3, Run Date: 05/20/2024 13:55, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Diethyl ether		108.0	67.4	121.2	2.5	30.0
Acetone		107.2	29.9	161.5	3.0	30.0
Methyl iodide		105.1	68.8	116.4	5.7	30.0
Carbon disulfide		100.0	63.8	137.4	6.9	30.0
tert-Methyl butyl ether (MTBE)		112.0	73.2	122.4	2.4	30.0
Acrylonitrile		108.2	69.9	128.9	2.9	30.0
2-Butanone (MEK)		105.4	44.0	134.4	6.1	30.0
Dichlorodifluoromethane		103.0	10.0	222.8	7.1	30.0
Chloromethane		94.1	23.8	166.5	16.7	30.0
Vinyl chloride		104.4	43.5	149.1	8.1	30.0
Bromomethane		106.4	56.8	151.3	5.7	30.0
Chloroethane		104.7	53.4	149.4	9.7	30.0
Trichlorofluoromethane		106.4	59.7	151.8	7.0	30.0
1,1-Dichloroethene		105.4	69.6	139.4	4.5	30.0
Methylene chloride		105.1	73.3	121.1	5.3	30.0
trans-1,2-Dichloroethene		105.5	73.6	129.3	4.4	30.0
1,1-Dichloroethane		107.9	71.5	126.2	4.3	30.0
cis-1,2-Dichloroethene		107.4	76.6	122.1	4.1	30.0
Tetrahydrofuran		98.2	59.0	117.9	0.7	30.0
Chloroform		103.9	78.4	124.0	4.2	30.0
Bromochloromethane		107.3	78.2	120.8	4.4	30.0
1,1,1-Trichloroethane		106.6	79.4	130.9	5.2	30.0
4-Methyl-2-pentanone (MIBK)		106.5	71.6	125.2	3.1	30.0
2-Hexanone		106.7	55.4	136.9	0.1	30.0
Carbon tetrachloride		103.7	72.6	133.0	4.3	30.0
Benzene		103.8	79.9	124.9	3.5	30.0
1,2-Dichloroethane		104.0	76.0	126.3	2.7	30.0
Trichloroethene		104.0	79.7	124.2	2.3	30.0
1,2-Dichloropropane		103.4	78.6	126.4	4.4	30.0
Bromodichloromethane		106.7	80.4	128.2	8.2	30.0
Dibromomethane		105.5	76.9	122.1	2.1	30.0
cis-1,3-Dichloropropene		107.1	79.8	129.9	4.6	30.0
Toluene		104.8	79.8	124.5	3.9	30.0
trans-1,3-Dichloropropene		107.8	74.0	131.3	3.5	30.0
1,1,2-Trichloroethane		105.3	78.7	123.1	3.3	30.0
Tetrachloroethene		104.6	74.5	124.5	3.5	30.0
trans-1,4-Dichloro-2-butene		117.6	68.6	135.4	1.8	30.0
Dibromochloromethane		107.2	74.6	127.2	4.2	30.0
1,2-Dibromoethane		106.5	70.3	133.7	2.9	30.0
Chlorobenzene		105.1	79.2	122.7	4.2	30.0

Organics - Volatiles, Prep Batch ID: VF240520W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: 240520A3.LCSDW20A, Parent Sample ID: 240520A3.LCSW20A

Run in Batch: 240520A3, Run Date: 05/20/2024 13:55, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,1,1,2-Tetrachloroethane		106.8	80.3	128.2	4.1	30.0
Ethylbenzene		104.3	79.5	129.1	4.1	30.0
p,m-Xylene		105.1	79.4	132.2	4.5	30.0
o-Xylene		106.0	80.2	131.0	3.2	30.0
Styrene		108.8	69.5	126.7	3.2	30.0
Isopropylbenzene		105.4	74.4	121.5	4.0	30.0
Bromoform		106.9	69.4	128.0	4.1	30.0
1,1,2,2-Tetrachloroethane		105.8	79.8	126.3	2.2	30.0
1,2,3-Trichloropropane		106.8	78.3	138.8	0.2	30.0
n-Propylbenzene		106.0	82.0	130.7	5.2	30.0
Bromobenzene		106.0	78.7	124.6	3.0	30.0
1,3,5-Trimethylbenzene		105.2	81.3	128.9	4.2	30.0
tert-Butylbenzene		104.8	80.7	128.9	4.2	30.0
1,2,4-Trimethylbenzene		106.0	81.4	130.8	4.3	30.0
sec-Butylbenzene		107.9	77.4	129.8	4.0	30.0
p-Isopropyltoluene		107.2	79.8	137.5	4.5	30.0
1,3-Dichlorobenzene		107.7	77.0	131.3	2.8	30.0
1,4-Dichlorobenzene		106.5	20.7	137.7	3.5	30.0
1,2-Dichlorobenzene		108.4	10.0	166.2	2.1	30.0
1,2,3-Trimethylbenzene		107.7	76.3	124.2	2.0	30.0
n-Butylbenzene		107.8	80.0	133.3	3.8	30.0
Hexachloroethane		112.8	23.8	138.1	4.4	30.0
1,2-Dibromo-3-chloropropane		109.0	21.2	189.4	3.0	30.0
1,2,4-Trichlorobenzene		114.0	27.4	143.4	1.9	30.0
1,2,3-Trichlorobenzene		113.2	75.4	131.4	3.2	30.0
Naphthalene		116.5	32.9	135.8	0.0	30.0
2-Methylnaphthalene		117.1	25.5	165.5	0.4	30.0

Matrix Spike (MS)

Lab Sample ID: 240520A3.6213724M, Parent Sample ID: S62137.23

Run in Batch: 240520A3, Run Date: 05/20/2024 22:30, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Diethyl ether		107.9	67.4	121.2
Acetone		106.4	29.9	161.5
Methyl iodide		115.0	68.8	116.4
Carbon disulfide		107.5	63.8	137.4
tert-Methyl butyl ether (MTBE)		112.1	73.2	122.4
Acrylonitrile		107.0	69.9	128.9
2-Butanone (MEK)		89.4	44.0	134.4
Dichlorodifluoromethane		116.4	10.0	222.8
Chloromethane		115.9	23.8	166.5
Vinyl chloride		113.0	43.5	149.1
Bromomethane		113.0	56.8	151.3
Chloroethane		108.4	53.4	149.4
Trichlorofluoromethane		115.9	59.7	151.8
1,1-Dichloroethene		112.9	69.6	139.4

Organics - Volatiles, Prep Batch ID: VF240520W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Matrix Spike (MS) (continued)

Lab Sample ID: 240520A3.6213724M, Parent Sample ID: S62137.23

Run in Batch: 240520A3, Run Date: 05/20/2024 22:30, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Methylene chloride		110.1	73.3	121.1
trans-1,2-Dichloroethene		112.1	73.6	129.3
1,1-Dichloroethane		113.4	71.5	126.2
cis-1,2-Dichloroethene		111.2	76.6	122.1
Tetrahydrofuran		94.0	59.0	117.9
Chloroform		109.8	78.4	124.0
Bromochloromethane		111.6	78.2	120.8
1,1,1-Trichloroethane		115.6	79.4	130.9
4-Methyl-2-pentanone (MIBK)		93.5	71.6	125.2
2-Hexanone		90.2	55.4	136.9
Carbon tetrachloride		106.9	72.6	133.0
Benzene		102.6	79.9	124.9
1,2-Dichloroethane		102.3	76.0	126.3
Trichloroethene		104.8	79.7	124.2
1,2-Dichloropropane		101.4	78.6	126.4
Bromodichloromethane		105.0	80.4	128.2
Dibromomethane		104.0	76.9	122.1
cis-1,3-Dichloropropene		101.1	79.8	129.9
Toluene		104.9	79.8	124.5
trans-1,3-Dichloropropene		101.5	74.0	131.3
1,1,2-Trichloroethane		103.1	78.7	123.1
Tetrachloroethene		106.5	74.5	124.5
trans-1,4-Dichloro-2-butene	*	49.9	68.6	135.4
Dibromochloromethane		105.0	74.6	127.2
1,2-Dibromoethane		101.7	70.3	133.7
Chlorobenzene		104.0	79.2	122.7
1,1,1,2-Tetrachloroethane		103.7	80.3	128.2
Ethylbenzene		104.4	79.5	129.1
p,m-Xylene		105.4	79.4	132.2
o-Xylene		105.2	80.2	131.0
Styrene		101.3	69.5	126.7
Isopropylbenzene		105.6	74.4	121.5
Bromoform		102.7	69.4	128.0
1,1,2,2-Tetrachloroethane		101.2	79.8	126.3
1,2,3-Trichloropropane		103.4	78.3	138.8
n-Propylbenzene		105.3	82.0	130.7
Bromobenzene		105.0	78.7	124.6
1,3,5-Trimethylbenzene		103.7	81.3	128.9
tert-Butylbenzene		104.4	80.7	128.9
1,2,4-Trimethylbenzene		104.6	81.4	130.8
sec-Butylbenzene		105.7	77.4	129.8
p-Isopropyltoluene		106.7	79.8	137.5
1,3-Dichlorobenzene		105.7	77.0	131.3
1,4-Dichlorobenzene		105.0	20.7	137.7
1,2-Dichlorobenzene		104.9	10.0	166.2
1,2,3-Trimethylbenzene		104.5	76.3	124.2

Organics - Volatiles, Prep Batch ID: VF240520W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Matrix Spike (MS) (continued)

Lab Sample ID: 240520A3.6213724M, Parent Sample ID: S62137.23

Run in Batch: 240520A3, Run Date: 05/20/2024 22:30, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
n-Butylbenzene		103.5	80.0	133.3
Hexachloroethane		107.4	23.8	138.1
1,2-Dibromo-3-chloropropane		100.1	21.2	189.4
1,2,4-Trichlorobenzene		107.0	27.4	143.4
1,2,3-Trichlorobenzene		107.9	75.4	131.4
Naphthalene		107.0	32.9	135.8
2-Methylnaphthalene		95.5	25.5	165.5

Matrix Spike Duplicate (MSD)

Lab Sample ID: 240520A3.6213725N, Parent Sample ID: 240520A3.6213724M

Run in Batch: 240520A3, Run Date: 05/20/2024 22:54, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Diethyl ether		109.6	67.4	121.2	1.5	30.0
Acetone		102.9	29.9	161.5	3.3	30.0
Methyl iodide		113.2	68.8	116.4	1.5	30.0
Carbon disulfide		104.4	63.8	137.4	3.0	30.0
tert-Methyl butyl ether (MTBE)		114.2	73.2	122.4	1.8	30.0
Acrylonitrile		109.1	69.9	128.9	2.0	30.0
2-Butanone (MEK)		94.4	44.0	134.4	5.4	30.0
Dichlorodifluoromethane		110.7	10.0	222.8	5.0	30.0
Chloromethane		111.9	23.8	166.5	3.6	30.0
Vinyl chloride		107.4	43.5	149.1	5.1	30.0
Bromomethane		110.2	56.8	151.3	2.5	30.0
Chloroethane		103.7	53.4	149.4	4.4	30.0
Trichlorofluoromethane		113.0	59.7	151.8	2.5	30.0
1,1-Dichloroethene		109.5	69.6	139.4	3.1	30.0
Methylene chloride		110.4	73.3	121.1	0.2	30.0
trans-1,2-Dichloroethene		107.0	73.6	129.3	4.7	30.0
1,1-Dichloroethane		110.1	71.5	126.2	2.9	30.0
cis-1,2-Dichloroethene		109.5	76.6	122.1	1.6	30.0
Tetrahydrofuran		100.8	59.0	117.9	6.9	30.0
Chloroform		108.0	78.4	124.0	1.6	30.0
Bromochloromethane		113.1	78.2	120.8	1.3	30.0
1,1,1-Trichloroethane		112.7	79.4	130.9	2.5	30.0
4-Methyl-2-pentanone (MIBK)		94.8	71.6	125.2	1.4	30.0
2-Hexanone		94.1	55.4	136.9	4.2	30.0
Carbon tetrachloride		104.4	72.6	133.0	2.4	30.0
Benzene		100.8	79.9	124.9	1.8	30.0
1,2-Dichloroethane		104.0	76.0	126.3	1.6	30.0
Trichloroethene		101.6	79.7	124.2	3.0	30.0
1,2-Dichloropropane		102.1	78.6	126.4	0.7	30.0
Bromodichloromethane		107.1	80.4	128.2	2.0	30.0
Dibromomethane		105.4	76.9	122.1	1.3	30.0
cis-1,3-Dichloropropene		103.2	79.8	129.9	2.1	30.0
Toluene		104.2	79.8	124.5	0.6	30.0
trans-1,3-Dichloropropene		102.5	74.0	131.3	1.0	30.0

Organics - Volatiles, Prep Batch ID: VF240520W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Matrix Spike Duplicate (MSD) (continued)

Lab Sample ID: 240520A3.6213725N, Parent Sample ID: 240520A3.6213724M

Run in Batch: 240520A3, Run Date: 05/20/2024 22:54, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,1,2-Trichloroethane		104.6	78.7	123.1	1.5	30.0
Tetrachloroethene		103.6	74.5	124.5	2.8	30.0
trans-1,4-Dichloro-2-butene	*	57.4	68.6	135.4	13.9	30.0
Dibromochloromethane		104.2	74.6	127.2	0.7	30.0
1,2-Dibromoethane		101.6	70.3	133.7	0.2	30.0
Chlorobenzene		101.2	79.2	122.7	2.7	30.0
1,1,1,2-Tetrachloroethane		104.6	80.3	128.2	0.9	30.0
Ethylbenzene		100.6	79.5	129.1	3.7	30.0
p,m-Xylene		103.1	79.4	132.2	2.2	30.0
o-Xylene		102.3	80.2	131.0	2.8	30.0
Styrene		100.2	69.5	126.7	1.0	30.0
Isopropylbenzene		101.6	74.4	121.5	3.9	30.0
Bromoform		102.5	69.4	128.0	0.2	30.0
1,1,2,2-Tetrachloroethane		100.3	79.8	126.3	0.8	30.0
1,2,3-Trichloropropane		101.3	78.3	138.8	2.0	30.0
n-Propylbenzene		101.1	82.0	130.7	4.1	30.0
Bromobenzene		102.7	78.7	124.6	2.2	30.0
1,3,5-Trimethylbenzene		101.2	81.3	128.9	2.5	30.0
tert-Butylbenzene		101.7	80.7	128.9	2.7	30.0
1,2,4-Trimethylbenzene		101.1	81.4	130.8	3.4	30.0
sec-Butylbenzene		101.4	77.4	129.8	4.1	30.0
p-Isopropyltoluene		101.6	79.8	137.5	4.9	30.0
1,3-Dichlorobenzene		103.0	77.0	131.3	2.6	30.0
1,4-Dichlorobenzene		102.4	20.7	137.7	2.5	30.0
1,2-Dichlorobenzene		103.5	10.0	166.2	1.4	30.0
1,2,3-Trimethylbenzene		101.0	76.3	124.2	3.4	30.0
n-Butylbenzene		99.1	80.0	133.3	4.3	30.0
Hexachloroethane		105.0	23.8	138.1	2.3	30.0
1,2-Dibromo-3-chloropropane		100.5	21.2	189.4	0.4	30.0
1,2,4-Trichlorobenzene		106.6	27.4	143.4	0.3	30.0
1,2,3-Trichlorobenzene		109.6	75.4	131.4	1.5	30.0
Naphthalene		108.0	32.9	135.8	0.9	30.0
2-Methylnaphthalene		104.1	25.5	165.5	8.6	30.0

Organics - Volatiles, Prep Batch ID: VF240521W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240521A9.BLKW21A

Run in Batch: 240521A9, Run Date: 05/21/2024 15:08, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Diethyl ether		ND	1.00	ug/l
Acetone		ND	10.00	ug/l
Methyl iodide		ND	1.00	ug/l
Carbon disulfide		ND	1.00	ug/l
tert-Methyl butyl ether (MTBE)		ND	1.00	ug/l
Acrylonitrile		ND	1.00	ug/l
2-Butanone (MEK)		ND	10.00	ug/l
Dichlorodifluoromethane		ND	1.00	ug/l
Chloromethane		ND	1.00	ug/l
Vinyl chloride		ND	1.00	ug/l
Bromomethane		ND	1.00	ug/l
Chloroethane		ND	1.00	ug/l
Trichlorofluoromethane		ND	1.00	ug/l
1,1-Dichloroethene		ND	1.00	ug/l
Methylene chloride		ND	1.00	ug/l
trans-1,2-Dichloroethene		ND	1.00	ug/l
1,1-Dichloroethane		ND	1.00	ug/l
cis-1,2-Dichloroethene		ND	1.00	ug/l
Tetrahydrofuran		ND	10.00	ug/l
Chloroform		ND	1.00	ug/l
Bromochloromethane		ND	1.00	ug/l
1,1,1-Trichloroethane		ND	1.00	ug/l
4-Methyl-2-pentanone (MIBK)		ND	10.00	ug/l
2-Hexanone		ND	10.00	ug/l
Carbon tetrachloride		ND	1.00	ug/l
Benzene		ND	1.00	ug/l
1,2-Dichloroethane		ND	1.00	ug/l
Trichloroethene		ND	1.00	ug/l
1,2-Dichloropropane		ND	1.00	ug/l
Bromodichloromethane		ND	1.00	ug/l
Dibromomethane		ND	1.00	ug/l
cis-1,3-Dichloropropene		ND	1.00	ug/l
Toluene		ND	1.00	ug/l
trans-1,3-Dichloropropene		ND	1.00	ug/l
1,1,2-Trichloroethane		ND	1.00	ug/l
Tetrachloroethene		ND	1.00	ug/l
trans-1,4-Dichloro-2-butene		ND	1.00	ug/l
Dibromochloromethane		ND	1.00	ug/l
1,2-Dibromoethane		ND	1.00	ug/l
Chlorobenzene		ND	1.00	ug/l
1,1,1,2-Tetrachloroethane		ND	1.00	ug/l
Ethylbenzene		ND	1.00	ug/l
p,m-Xylene		ND	2.00	ug/l
o-Xylene		ND	1.00	ug/l
Styrene		ND	1.00	ug/l
Isopropylbenzene		ND	1.00	ug/l

Organics - Volatiles, Prep Batch ID: VF240521W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK) (continued)

Lab Sample ID: 240521A9.BLKW21A

Run in Batch: 240521A9, Run Date: 05/21/2024 15:08, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Bromoform		ND	1.00	ug/l
1,1,2,2-Tetrachloroethane		ND	1.00	ug/l
1,2,3-Trichloropropane		ND	1.00	ug/l
n-Propylbenzene		ND	1.00	ug/l
Bromobenzene		ND	1.00	ug/l
1,3,5-Trimethylbenzene		ND	1.00	ug/l
tert-Butylbenzene		ND	1.00	ug/l
1,2,4-Trimethylbenzene		ND	1.00	ug/l
sec-Butylbenzene		ND	1.00	ug/l
p-Isopropyltoluene		ND	1.00	ug/l
1,3-Dichlorobenzene		ND	1.00	ug/l
1,4-Dichlorobenzene		ND	1.00	ug/l
1,2-Dichlorobenzene		ND	1.00	ug/l
1,2,3-Trimethylbenzene		ND	1.00	ug/l
n-Butylbenzene		ND	1.00	ug/l
Hexachloroethane		ND	1.00	ug/l
1,2-Dibromo-3-chloropropane		ND	1.00	ug/l
1,2,4-Trichlorobenzene		ND	1.00	ug/l
1,2,3-Trichlorobenzene		ND	1.00	ug/l
Naphthalene		ND	1.00	ug/l
2-Methylnaphthalene		ND	1.00	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 240521A9.LCSW21A

Run in Batch: 240521A9, Run Date: 05/21/2024 13:32, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Diethyl ether		86.8	67.4	121.2
Acetone		77.5	29.9	161.5
Methyl iodide		94.6	68.8	116.4
Carbon disulfide		82.9	63.8	137.4
tert-Methyl butyl ether (MTBE)		93.2	73.2	122.4
Acrylonitrile		83.7	69.9	128.9
2-Butanone (MEK)		93.9	44.0	134.4
Dichlorodifluoromethane		85.1	10.0	222.8
Chloromethane		88.9	23.8	166.5
Vinyl chloride		93.5	43.5	149.1
Bromomethane		95.8	56.8	151.3
Chloroethane		93.9	53.4	149.4
Trichlorofluoromethane		93.0	59.7	151.8
1,1-Dichloroethene		82.5	69.6	139.4
Methylene chloride		86.3	73.3	121.1
trans-1,2-Dichloroethene		83.8	73.6	129.3
1,1-Dichloroethane		84.2	71.5	126.2
cis-1,2-Dichloroethene		91.5	76.6	122.1
Tetrahydrofuran		76.8	59.0	117.9
Chloroform		85.4	78.4	124.0

Organics - Volatiles, Prep Batch ID: VF240521W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 240521A9.LCSW21A

Run in Batch: 240521A9, Run Date: 05/21/2024 13:32, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Bromochloromethane		95.6	78.2	120.8
1,1,1-Trichloroethane		87.2	79.4	130.9
4-Methyl-2-pentanone (MIBK)		99.8	71.6	125.2
2-Hexanone		97.7	55.4	136.9
Carbon tetrachloride		95.2	72.6	133.0
Benzene		92.3	79.9	124.9
1,2-Dichloroethane		86.5	76.0	126.3
Trichloroethene		95.7	79.7	124.2
1,2-Dichloropropane		90.2	78.6	126.4
Bromodichloromethane		94.2	80.4	128.2
Dibromomethane		105.7	76.9	122.1
cis-1,3-Dichloropropene		95.3	79.8	129.9
Toluene		93.1	79.8	124.5
trans-1,3-Dichloropropene		95.9	74.0	131.3
1,1,2-Trichloroethane		93.7	78.7	123.1
Tetrachloroethene		102.9	74.5	124.5
trans-1,4-Dichloro-2-butene		101.7	68.6	135.4
Dibromochloromethane		108.2	74.6	127.2
1,2-Dibromoethane		104.7	70.3	133.7
Chlorobenzene		102.0	79.2	122.7
1,1,1,2-Tetrachloroethane		105.4	80.3	128.2
Ethylbenzene		101.1	79.5	129.1
p,m-Xylene		103.7	79.4	132.2
o-Xylene		99.3	80.2	131.0
Styrene		101.9	69.5	126.7
Isopropylbenzene		104.6	74.4	121.5
Bromoform		111.2	69.4	128.0
1,1,2,2-Tetrachloroethane		102.9	79.8	126.3
1,2,3-Trichloropropane		101.3	78.3	138.8
n-Propylbenzene		102.9	82.0	130.7
Bromobenzene		105.6	78.7	124.6
1,3,5-Trimethylbenzene		106.8	81.3	128.9
tert-Butylbenzene		99.8	80.7	128.9
1,2,4-Trimethylbenzene		105.9	81.4	130.8
sec-Butylbenzene		98.9	77.4	129.8
p-Isopropyltoluene		100.3	79.8	137.5
1,3-Dichlorobenzene		98.9	77.0	131.3
1,4-Dichlorobenzene		101.5	20.7	137.7
1,2-Dichlorobenzene		102.1	10.0	166.2
1,2,3-Trimethylbenzene		105.5	76.3	124.2
n-Butylbenzene		99.3	80.0	133.3
Hexachloroethane		115.1	23.8	138.1
1,2-Dibromo-3-chloropropane		105.5	21.2	189.4
1,2,4-Trichlorobenzene		108.7	27.4	143.4
1,2,3-Trichlorobenzene		111.5	75.4	131.4
Naphthalene		108.7	32.9	135.8

Organics - Volatiles, Prep Batch ID: VF240521W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 240521A9.LCSW21A

Run in Batch: 240521A9, Run Date: 05/21/2024 13:32, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
2-Methylnaphthalene		106.1	25.5	165.5

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240521A9.LCSDW21A, Parent Sample ID: 240521A9.LCSW21A

Run in Batch: 240521A9, Run Date: 05/21/2024 13:56, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Diethyl ether		84.6	67.4	121.2	2.6	30.0
Acetone		76.5	29.9	161.5	1.3	30.0
Methyl iodide		91.6	68.8	116.4	3.2	30.0
Carbon disulfide		79.3	63.8	137.4	4.4	30.0
tert-Methyl butyl ether (MTBE)		91.0	73.2	122.4	2.4	30.0
Acrylonitrile		83.4	69.9	128.9	0.4	30.0
2-Butanone (MEK)		90.4	44.0	134.4	3.9	30.0
Dichlorodifluoromethane		82.7	10.0	222.8	2.8	30.0
Chloromethane		87.4	23.8	166.5	1.8	30.0
Vinyl chloride		90.5	43.5	149.1	3.2	30.0
Bromomethane		94.0	56.8	151.3	1.9	30.0
Chloroethane		92.1	53.4	149.4	1.9	30.0
Trichlorofluoromethane		90.2	59.7	151.8	3.1	30.0
1,1-Dichloroethene		79.1	69.6	139.4	4.2	30.0
Methylene chloride		84.2	73.3	121.1	2.4	30.0
trans-1,2-Dichloroethene		81.1	73.6	129.3	3.2	30.0
1,1-Dichloroethane		81.7	71.5	126.2	3.1	30.0
cis-1,2-Dichloroethene		87.9	76.6	122.1	4.0	30.0
Tetrahydrofuran		77.9	59.0	117.9	1.4	30.0
Chloroform		83.5	78.4	124.0	2.2	30.0
Bromochloromethane		92.9	78.2	120.8	2.8	30.0
1,1,1-Trichloroethane		84.8	79.4	130.9	2.8	30.0
4-Methyl-2-pentanone (MIBK)		95.8	71.6	125.2	4.1	30.0
2-Hexanone		95.3	55.4	136.9	2.5	30.0
Carbon tetrachloride		90.7	72.6	133.0	4.8	30.0
Benzene		87.6	79.9	124.9	5.3	30.0
1,2-Dichloroethane		84.0	76.0	126.3	2.8	30.0
Trichloroethene		91.3	79.7	124.2	4.6	30.0
1,2-Dichloropropane		87.3	78.6	126.4	3.2	30.0
Bromodichloromethane		90.8	80.4	128.2	3.6	30.0
Dibromomethane		101.8	76.9	122.1	3.7	30.0
cis-1,3-Dichloropropene		92.5	79.8	129.9	3.0	30.0
Toluene		90.5	79.8	124.5	2.9	30.0
trans-1,3-Dichloropropene		92.3	74.0	131.3	3.8	30.0
1,1,2-Trichloroethane		90.6	78.7	123.1	3.5	30.0
Tetrachloroethene		96.6	74.5	124.5	6.3	30.0
trans-1,4-Dichloro-2-butene		100.9	68.6	135.4	0.8	30.0
Dibromochloromethane		103.9	74.6	127.2	4.1	30.0
1,2-Dibromoethane		99.5	70.3	133.7	5.1	30.0
Chlorobenzene		98.8	79.2	122.7	3.2	30.0

Organics - Volatiles, Prep Batch ID: VF240521W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: 240521A9.LCSDW21A, Parent Sample ID: 240521A9.LCSW21A

Run in Batch: 240521A9, Run Date: 05/21/2024 13:56, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,1,1,2-Tetrachloroethane		102.2	80.3	128.2	3.2	30.0
Ethylbenzene		97.4	79.5	129.1	3.7	30.0
p,m-Xylene		98.4	79.4	132.2	5.2	30.0
o-Xylene		96.2	80.2	131.0	3.2	30.0
Styrene		98.2	69.5	126.7	3.7	30.0
Isopropylbenzene		99.7	74.4	121.5	4.8	30.0
Bromoform		107.3	69.4	128.0	3.5	30.0
1,1,2,2-Tetrachloroethane		99.3	79.8	126.3	3.6	30.0
1,2,3-Trichloropropane		99.8	78.3	138.8	1.6	30.0
n-Propylbenzene		99.0	82.0	130.7	3.9	30.0
Bromobenzene		103.8	78.7	124.6	1.7	30.0
1,3,5-Trimethylbenzene		102.3	81.3	128.9	4.2	30.0
tert-Butylbenzene		96.2	80.7	128.9	3.7	30.0
1,2,4-Trimethylbenzene		101.7	81.4	130.8	4.0	30.0
sec-Butylbenzene		95.8	77.4	129.8	3.2	30.0
p-Isopropyltoluene		96.3	79.8	137.5	4.0	30.0
1,3-Dichlorobenzene		96.6	77.0	131.3	2.3	30.0
1,4-Dichlorobenzene		97.5	20.7	137.7	4.0	30.0
1,2-Dichlorobenzene		98.3	10.0	166.2	3.8	30.0
1,2,3-Trimethylbenzene		102.5	76.3	124.2	2.9	30.0
n-Butylbenzene		95.4	80.0	133.3	3.9	30.0
Hexachloroethane		110.8	23.8	138.1	3.8	30.0
1,2-Dibromo-3-chloropropane		102.0	21.2	189.4	3.4	30.0
1,2,4-Trichlorobenzene		106.4	27.4	143.4	2.1	30.0
1,2,3-Trichlorobenzene		108.2	75.4	131.4	2.9	30.0
Naphthalene		108.1	32.9	135.8	0.5	30.0
2-Methylnaphthalene		108.8	25.5	165.5	2.5	30.0

Merit Laboratories Login Checklist

Lab Set ID: S62135
Client: ARCADIS_NOVI (ARCADIS U.S., Inc.)
Project: 30214036.0470A / RACER Lansing GWS
Submitted: 05/16/2024 12:10 Login User: MMC

Attention: Kaitlyn Hunt
Address: Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 6.0
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[ ] Yes	[X] No	[ ] N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	[X] Yes	[ ] No	[ ] N/A	Do sample have correct chemical preservation	
11.	[ ] Yes	[ ] No	[X] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[ ] Yes	[X] No	[ ] N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[ ] Yes	[X] No	[ ] N/A	Samples require laboratory filtration	
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[X] No	[ ] N/A	Do water VOC or TOX bottles contain headspace	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Plant 2

Merit Laboratories, Inc.
2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Tiffany Linder, Kaitlyn Hunt
COMPANY: Arcadis
ADDRESS: 28550 Cabot Drive, STE 500
CITY: Novi | STATE: MI | ZIP CODE: 48377
PHONE NO.: 947-777-5215 | FAX NO.: | P.O. NO.: US3460016166
E-MAIL ADDRESS: kaitlyn.hunt@arcadis.com | QUOTE NO.:

INVOICE TO

CONTACT NAME: ☒ SAME
COMPANY:
ADDRESS:
CITY: | STATE: | ZIP CODE:
PHONE NO.: | E-MAIL ADDRESS: tiffany.linder@arcadis.com

PROJECT NO./NAME: 30214036.0470A / RACER Lansing GWS
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Austin Westhuis/

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☒ EDD ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐ OHIO VAP ☐ Drinking Water ☐ DoD ☐ NPDES

Project Locations: ☐ Detroit ☐ New York ☐ Other

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	1,4-Dioxane - 8260 SIMS	VOC - 8260 SIMS	SVOC-8270 SIMS	Select Total Metals	Select Diss. Metals	Hex Chromium	Special Instructions
62135.01	5/15/24	1740	MW-14-62_05152 4	GW	5	2	3						X	X	X				Select Metals include As, Ni, Pb, V, Cr, Cu
.02	5/15/24	—	Trip Blank	GW	1		1							X					

Special Instructions: Select Metals include As, Ni, Pb, V, Cr, Cu

RELINQUISHED BY: SIGNATURE/ORGANIZATION	Arcadis (Sampler)	DATE 5/16/24	TIME 1210
RECEIVED BY: SIGNATURE/ORGANIZATION	Merit Drop Box	DATE 5/16/24	TIME 1210
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

RELINQUISHED BY: SIGNATURE/ORGANIZATION	Merit Drop Box	DATE 5/16/24	TIME 1210
RECEIVED BY: SIGNATURE/ORGANIZATION	M Calcotto	DATE 5/16/24	TIME 1210

SEAL NO. | SEAL INTACT YES☐ NO☐ | INITIALS
SEAL NO. | SEAL INTACT YES☐ NO☐ | INITIALS

NOTES | TEMP. ON ARRIVAL 6.0

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

Analytical Laboratory Report

Report ID: S62137.01(01)+QC01
Generated on 05/23/2024

Report to

Attention: Kaitlyn Hunt
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 C:947-777-5215 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Addtional Contacts: Marina Samp, Tiffany Linder

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S62137.01-S62137.33
Project: 30214036.0470B / RACER Lansing GWS
Collected Date(s): 05/14/2024 - 05/16/2024
Submitted Date/Time: 05/16/2024 12:10
Sampled by: Austin Westhuis
P.O. #: US3460016187

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Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Starred (*) analytes are not NY NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.
Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.
All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.
For a specific list of accredited analytes, please feel free to contact the laboratory or visit https://www.meritlabs.com/certifications.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
o	Associated EIS outside of control limits
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
q	Qualifier ion ratio outside of control limits
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
N/A	Not Applicable
SW3510C	SW 846 Method 3510C Revision 3 December 1996
SW5030C/8260C	SW 846 Method 8260C Revision 3 August 2006 / 5030C Revision 3 May 2003
SW8260B - SIM	SW 846 Method 8260B Revision 2 December 1996 SIMs
SW8270D	SW 846 Method 8270D Revision 4 February 2007

Sample Summary (33 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S62137.01	MW-19-121_051424	Groundwater	05/14/24 11:25
S62137.02	MW-19-122_051424	Groundwater	05/14/24 13:05
S62137.03	MW-19-123_051424	Groundwater	05/14/24 15:45
S62137.04	MW-19-124_051424	Groundwater	05/14/24 16:50
S62137.05	MW-16-75_051424	Groundwater	05/14/24 16:45
S62137.06	MW-14-61_051524	Groundwater	05/15/24 10:35
S62137.07	MW-15-72_051524	Groundwater	05/15/24 12:15
S62137.08	MW-16-81_051524	Groundwater	05/15/24 13:40
S62137.09	DUP-02_051524	Groundwater	05/15/24 00:01
S62137.10	TW-15-12_051624	Groundwater	05/16/24 09:25
S62137.11	Trip Blank	Water	05/14/24 00:01
S62137.12	MW-16-74_051424	Groundwater	05/14/24 11:30
S62137.13	MW-16-77_051424	Groundwater	05/14/24 13:15
S62137.14	MW-16-78_051424	Groundwater	05/14/24 15:00
S62137.15	MW-19-120_051424	Groundwater	05/14/24 16:45
S62137.16	MW-21-142_051524	Groundwater	05/15/24 10:15
S62137.17	PW-14-01_051524	Groundwater	05/15/24 12:10
S62137.18	TW-14-02_051524	Groundwater	05/15/24 15:35
S62137.19	PW-14-02_051524	Groundwater	05/15/24 13:55
S62137.20	MW-13-43_051424	Groundwater	05/14/24 10:25
S62137.21	MW-13-45_051424	Groundwater	05/14/24 11:45
S62137.22	MW-16-82_051424	Groundwater	05/14/24 12:50
S62137.23	MW-16-84_051424	Groundwater	05/14/24 14:10
S62137.24	MW-16-84_051424 MS	Groundwater	05/14/24 14:10
S62137.25	MW-16-84_051424 MSD	Groundwater	05/14/24 14:10
S62137.26	MW-17-86_051424	Groundwater	05/14/24 15:25
S62137.27	MW-20-127_051524	Groundwater	05/15/24 09:35
S62137.28	MW-20-128_051524	Groundwater	05/15/24 11:00
S62137.29	MW-19-117_051524	Groundwater	05/15/24 12:15
S62137.30	MW-19-116_051524	Groundwater	05/15/24 13:40
S62137.31	MW-19-115_051524	Groundwater	05/15/24 14:30
S62137.32	MW-20-129_051524	Groundwater	05/15/24 15:55
S62137.33	DUP-03_051524	Groundwater	05/15/24 00:01

Analytical Laboratory Report

Lab Sample ID: S62137.01
Sample Tag: MW-19-121_051424
Collected Date/Time: 05/14/2024 11:25
Matrix: Groundwater
COC Reference: 1

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/21/24 11:20	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/20/24 18:04, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	Not detected	1		ug/L	1	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S62137.02
Sample Tag: MW-19-122_051424
Collected Date/Time: 05/14/2024 13:05
Matrix: Groundwater
COC Reference: 1

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/21/24 11:20	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/20/24 18:29, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	3	1		ug/L	1	123-91-1	

Lab Sample ID: S62137.03
Sample Tag: MW-19-123_051424
Collected Date/Time: 05/14/2024 15:45
Matrix: Groundwater
COC Reference: 1

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/21/24 11:20	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/20/24 18:53, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	24	1		ug/L	1	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S62137.04
Sample Tag: MW-19-124_051424
Collected Date/Time: 05/14/2024 16:50
Matrix: Groundwater
COC Reference: 1

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/21/24 11:20	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/20/24 19:18, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	186	1		ug/L	1	123-91-1	

Lab Sample ID: S62137.05
Sample Tag: MW-16-75_051424
Collected Date/Time: 05/14/2024 16:45
Matrix: Groundwater
COC Reference: 1

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/21/24 11:20	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/21/24 15:17, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	1	1		ug/L	1	123-91-1	

Lab Sample ID: S62137.06
Sample Tag: MW-14-61_051524
Collected Date/Time: 05/15/2024 10:35
Matrix: Groundwater
COC Reference: 1

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	6.0	IR
2	1L Amber	None	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/17/24 11:15	NDK	
BNA Extraction	Completed	SW3510C	05/21/24 10:30	JWR	

Organics - Semi-Volatiles

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 05/22/24 15:45, Analyst: PL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acenaphthene	Not detected	5		ug/L	2	83-32-9	
Acenaphthylene	Not detected	5		ug/L	2	208-96-8	
Anthracene	Not detected	5		ug/L	2	120-12-7	
Benzo(a)anthracene	Not detected	1		ug/L	2	56-55-3	
Benzo(b)fluoranthene	Not detected	1		ug/L	2	205-99-2	
Benzo(k)fluoranthene	Not detected	1		ug/L	2	207-08-9	
Benzo(ghi)perylene	Not detected	1		ug/L	2	191-24-2	
Benzo(a)pyrene	Not detected	1		ug/L	2	50-32-8	
bis(2-Chloroethoxy)methane	Not detected	5		ug/L	2	111-91-1	
bis(2-Chloroethyl)ether	Not detected	5		ug/L	2	111-44-4	
bis(2-Chloroisopropyl)ether*	Not detected	5		ug/L	2	108-60-1	
bis(2-Ethylhexyl)phthalate	Not detected	5		ug/L	2	117-81-7	
4-Bromophenyl phenyl ether	Not detected	5		ug/L	2	101-55-3	
Butyl benzyl phthalate	Not detected	5		ug/L	2	85-68-7	
4-Chloroaniline	Not detected	10		ug/L	2	106-47-8	
2-Chloronaphthalene	Not detected	5		ug/L	2	91-58-7	
4-Chloro-3-methylphenol	Not detected	5		ug/L	2	59-50-7	
2-Chlorophenol	Not detected	10		ug/L	2	95-57-8	
4-Chlorophenyl phenyl ether	Not detected	5		ug/L	2	7005-72-3	
Chrysene	Not detected	1		ug/L	2	218-01-9	
3-, 4-Methylphenol (p,m-Cresol)	Not detected	20		ug/L	2	3/4-CRESOL	
2-Methylphenol (o-Cresol)	Not detected	10		ug/L	2	95-48-7	
Dibenzo(ah)anthracene	Not detected	2		ug/L	2	53-70-3	
Dibenzofuran	Not detected	4		ug/L	2	132-64-9	
di-n-Butyl phthalate	Not detected	5		ug/L	2	84-74-2	
1,2-Dichlorobenzene	Not detected	1		ug/L	2	95-50-1	
1,3-Dichlorobenzene	Not detected	1		ug/L	2	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	2	106-46-7	
3,3'-Dichlorobenzidine	Not detected	5		ug/L	2	91-94-1	
2,4-Dichlorophenol	Not detected	10		ug/L	2	120-83-2	
Diethyl phthalate	Not detected	5		ug/L	2	84-66-2	
2,4-Dimethylphenol	Not detected	5		ug/L	2	105-67-9	
Dimethyl phthalate	Not detected	5		ug/L	2	131-11-3	
4,6-Dinitro-2-methylphenol	Not detected	20		ug/L	2	534-52-1	
2,4-Dinitrophenol	Not detected	25		ug/L	2	51-28-5	

Lab Sample ID: S62137.06 (continued)
Sample Tag: MW-14-61_051524

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 05/22/24 15:45, Analyst: PL (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
2,4-Dinitrotoluene	Not detected	5		ug/L	2	121-14-2	
2,6-Dinitrotoluene	Not detected	5		ug/L	2	606-20-2	
1,2-Diphenylhydrazine*	Not detected	5		ug/L	2	122-66-7	
di-n-Octyl phthalate	Not detected	5		ug/L	2	117-84-0	
Fluoranthene	Not detected	1		ug/L	2	206-44-0	
Fluorene	Not detected	5		ug/L	2	86-73-7	
Hexachlorobenzene	Not detected	5		ug/L	2	118-74-1	
Hexachlorobutadiene	Not detected	10		ug/L	2	87-68-3	
Hexachlorocyclopentadiene*	Not detected	5		ug/L	2	77-47-4	
Hexachloroethane	Not detected	5		ug/L	2	67-72-1	
Indeno(1,2,3-cd)pyrene	Not detected	2		ug/L	2	193-39-5	
Isophorone	Not detected	5		ug/L	2	78-59-1	
2-Methylnaphthalene	Not detected	5		ug/L	2	91-57-6	
Naphthalene	Not detected	5		ug/L	2	91-20-3	
2-Nitroaniline	Not detected	25		ug/L	2	88-74-4	
3-Nitroaniline	Not detected	25		ug/L	2	99-09-2	
4-Nitroaniline	Not detected	25		ug/L	2	100-01-6	
Nitrobenzene	Not detected	5		ug/L	2	98-95-3	
2-Nitrophenol	Not detected	5		ug/L	2	88-75-5	
4-Nitrophenol	Not detected	25		ug/L	2	100-02-7	
N-Nitrosodiphenylamine	Not detected	5		ug/L	2	86-30-6	
N-Nitrosodi-n-propylamine	Not detected	5		ug/L	2	621-64-7	
Pentachlorophenol	Not detected	5		ug/L	2	87-86-5	
Phenanthrene	Not detected	2		ug/L	2	85-01-8	
Phenol	Not detected	5		ug/L	2	108-95-2	
Pyrene	Not detected	5		ug/L	2	129-00-0	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	2	120-82-1	
2,4,5-Trichlorophenol	Not detected	5		ug/L	2	95-95-4	
2,4,6-Trichlorophenol	Not detected	4		ug/L	2	88-06-2	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/20/24 20:07, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	8	1		ug/L	1	123-91-1	

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/17/24 02:16, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	

Lab Sample ID: S62137.06 (continued)
Sample Tag: MW-14-61_051524

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/17/24 02:16, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	

Lab Sample ID: S62137.06 (continued)

Sample Tag: MW-14-61_051524

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/17/24 02:16, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Lab Sample ID: S62137.07
Sample Tag: MW-15-72_051524
Collected Date/Time: 05/15/2024 12:15
Matrix: Groundwater
COC Reference: 1

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	6.0	IR
2	1L Amber	None	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/17/24 11:15	NDK	
BNA Extraction	Completed	SW3510C	05/21/24 10:30	JWR	

Organics - Semi-Volatiles

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 05/22/24 16:16, Analyst: PL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acenaphthene	Not detected	5		ug/L	2	83-32-9	
Acenaphthylene	Not detected	5		ug/L	2	208-96-8	
Anthracene	Not detected	5		ug/L	2	120-12-7	
Benzo(a)anthracene	Not detected	1		ug/L	2	56-55-3	
Benzo(b)fluoranthene	Not detected	1		ug/L	2	205-99-2	
Benzo(k)fluoranthene	Not detected	1		ug/L	2	207-08-9	
Benzo(ghi)perylene	Not detected	1		ug/L	2	191-24-2	
Benzo(a)pyrene	Not detected	1		ug/L	2	50-32-8	
bis(2-Chloroethoxy)methane	Not detected	5		ug/L	2	111-91-1	
bis(2-Chloroethyl)ether	Not detected	5		ug/L	2	111-44-4	
bis(2-Chloroisopropyl)ether*	Not detected	5		ug/L	2	108-60-1	
bis(2-Ethylhexyl)phthalate	Not detected	5		ug/L	2	117-81-7	
4-Bromophenyl phenyl ether	Not detected	5		ug/L	2	101-55-3	
Butyl benzyl phthalate	Not detected	5		ug/L	2	85-68-7	
4-Chloroaniline	Not detected	10		ug/L	2	106-47-8	
2-Chloronaphthalene	Not detected	5		ug/L	2	91-58-7	
4-Chloro-3-methylphenol	Not detected	5		ug/L	2	59-50-7	
2-Chlorophenol	Not detected	10		ug/L	2	95-57-8	
4-Chlorophenyl phenyl ether	Not detected	5		ug/L	2	7005-72-3	
Chrysene	Not detected	1		ug/L	2	218-01-9	
3-, 4-Methylphenol (p,m-Cresol)	Not detected	20		ug/L	2	3/4-CRESOL	
2-Methylphenol (o-Cresol)	Not detected	10		ug/L	2	95-48-7	
Dibenzo(ah)anthracene	Not detected	2		ug/L	2	53-70-3	
Dibenzofuran	Not detected	4		ug/L	2	132-64-9	
di-n-Butyl phthalate	Not detected	5		ug/L	2	84-74-2	
1,2-Dichlorobenzene	Not detected	1		ug/L	2	95-50-1	
1,3-Dichlorobenzene	Not detected	1		ug/L	2	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	2	106-46-7	
3,3'-Dichlorobenzidine	Not detected	5		ug/L	2	91-94-1	
2,4-Dichlorophenol	Not detected	10		ug/L	2	120-83-2	
Diethyl phthalate	Not detected	5		ug/L	2	84-66-2	
2,4-Dimethylphenol	Not detected	5		ug/L	2	105-67-9	
Dimethyl phthalate	Not detected	5		ug/L	2	131-11-3	
4,6-Dinitro-2-methylphenol	Not detected	20		ug/L	2	534-52-1	
2,4-Dinitrophenol	Not detected	25		ug/L	2	51-28-5	

Lab Sample ID: S62137.07 (continued)
Sample Tag: MW-15-72_051524

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 05/22/24 16:16, Analyst: PL (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
2,4-Dinitrotoluene	Not detected	5		ug/L	2	121-14-2	
2,6-Dinitrotoluene	Not detected	5		ug/L	2	606-20-2	
1,2-Diphenylhydrazine*	Not detected	5		ug/L	2	122-66-7	
di-n-Octyl phthalate	Not detected	5		ug/L	2	117-84-0	
Fluoranthene	Not detected	1		ug/L	2	206-44-0	
Fluorene	Not detected	5		ug/L	2	86-73-7	
Hexachlorobenzene	Not detected	5		ug/L	2	118-74-1	
Hexachlorobutadiene	Not detected	10		ug/L	2	87-68-3	
Hexachlorocyclopentadiene*	Not detected	5		ug/L	2	77-47-4	
Hexachloroethane	Not detected	5		ug/L	2	67-72-1	
Indeno(1,2,3-cd)pyrene	Not detected	2		ug/L	2	193-39-5	
Isophorone	Not detected	5		ug/L	2	78-59-1	
2-Methylnaphthalene	Not detected	5		ug/L	2	91-57-6	
Naphthalene	Not detected	5		ug/L	2	91-20-3	
2-Nitroaniline	Not detected	25		ug/L	2	88-74-4	
3-Nitroaniline	Not detected	25		ug/L	2	99-09-2	
4-Nitroaniline	Not detected	25		ug/L	2	100-01-6	
Nitrobenzene	Not detected	5		ug/L	2	98-95-3	
2-Nitrophenol	Not detected	5		ug/L	2	88-75-5	
4-Nitrophenol	Not detected	25		ug/L	2	100-02-7	
N-Nitrosodiphenylamine	Not detected	5		ug/L	2	86-30-6	
N-Nitrosodi-n-propylamine	Not detected	5		ug/L	2	621-64-7	
Pentachlorophenol	Not detected	5		ug/L	2	87-86-5	
Phenanthrene	Not detected	2		ug/L	2	85-01-8	
Phenol	Not detected	5		ug/L	2	108-95-2	
Pyrene	Not detected	5		ug/L	2	129-00-0	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	2	120-82-1	
2,4,5-Trichlorophenol	Not detected	5		ug/L	2	95-95-4	
2,4,6-Trichlorophenol	Not detected	4		ug/L	2	88-06-2	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/20/24 20:31, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	165	1		ug/L	1	123-91-1	

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/17/24 02:40, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	

Lab Sample ID: S62137.07 (continued)
Sample Tag: MW-15-72_051524

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/17/24 02:40, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	

Lab Sample ID: S62137.07 (continued)

Sample Tag: MW-15-72_051524

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/17/24 02:40, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Lab Sample ID: S62137.08
Sample Tag: MW-16-81_051524
Collected Date/Time: 05/15/2024 13:40
Matrix: Groundwater
COC Reference: 1

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/17/24 11:15	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/20/24 20:55, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	38	1		ug/L	1	123-91-1	

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/17/24 03:04, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	

Lab Sample ID: S62137.08 (continued)
Sample Tag: MW-16-81_051524

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/17/24 03:04, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Lab Sample ID: S62137.09
Sample Tag: DUP-02_051524
Collected Date/Time: 05/15/2024 00:01
Matrix: Groundwater
COC Reference: 1

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	6.0	IR
2	1L Amber	None	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/17/24 11:15	NDK	
BNA Extraction	Completed	SW3510C	05/21/24 10:30	JWR	

Organics - Semi-Volatiles

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 05/22/24 17:48, Analyst: PL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acenaphthene	Not detected	5		ug/L	2	83-32-9	
Acenaphthylene	Not detected	5		ug/L	2	208-96-8	
Anthracene	Not detected	5		ug/L	2	120-12-7	
Benzo(a)anthracene	Not detected	1		ug/L	2	56-55-3	
Benzo(b)fluoranthene	Not detected	1		ug/L	2	205-99-2	
Benzo(k)fluoranthene	Not detected	1		ug/L	2	207-08-9	
Benzo(ghi)perylene	Not detected	1		ug/L	2	191-24-2	
Benzo(a)pyrene	Not detected	1		ug/L	2	50-32-8	
bis(2-Chloroethoxy)methane	Not detected	5		ug/L	2	111-91-1	
bis(2-Chloroethyl)ether	Not detected	5		ug/L	2	111-44-4	
bis(2-Chloroisopropyl)ether*	Not detected	5		ug/L	2	108-60-1	
bis(2-Ethylhexyl)phthalate	Not detected	5		ug/L	2	117-81-7	
4-Bromophenyl phenyl ether	Not detected	5		ug/L	2	101-55-3	
Butyl benzyl phthalate	Not detected	5		ug/L	2	85-68-7	
4-Chloroaniline	Not detected	10		ug/L	2	106-47-8	
2-Chloronaphthalene	Not detected	5		ug/L	2	91-58-7	
4-Chloro-3-methylphenol	Not detected	5		ug/L	2	59-50-7	
2-Chlorophenol	Not detected	10		ug/L	2	95-57-8	
4-Chlorophenyl phenyl ether	Not detected	5		ug/L	2	7005-72-3	
Chrysene	Not detected	1		ug/L	2	218-01-9	
3-, 4-Methylphenol (p,m-Cresol)	Not detected	20		ug/L	2	3/4-CRESOL	
2-Methylphenol (o-Cresol)	Not detected	10		ug/L	2	95-48-7	
Dibenzo(ah)anthracene	Not detected	2		ug/L	2	53-70-3	
Dibenzofuran	Not detected	4		ug/L	2	132-64-9	
di-n-Butyl phthalate	Not detected	5		ug/L	2	84-74-2	
1,2-Dichlorobenzene	Not detected	1		ug/L	2	95-50-1	
1,3-Dichlorobenzene	Not detected	1		ug/L	2	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	2	106-46-7	
3,3'-Dichlorobenzidine	Not detected	5		ug/L	2	91-94-1	
2,4-Dichlorophenol	Not detected	10		ug/L	2	120-83-2	
Diethyl phthalate	Not detected	5		ug/L	2	84-66-2	
2,4-Dimethylphenol	Not detected	5		ug/L	2	105-67-9	
Dimethyl phthalate	Not detected	5		ug/L	2	131-11-3	
4,6-Dinitro-2-methylphenol	Not detected	20		ug/L	2	534-52-1	
2,4-Dinitrophenol	Not detected	25		ug/L	2	51-28-5	

Lab Sample ID: S62137.09 (continued)
Sample Tag: DUP-02_051524

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 05/22/24 17:48, Analyst: PL (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
2,4-Dinitrotoluene	Not detected	5		ug/L	2	121-14-2	
2,6-Dinitrotoluene	Not detected	5		ug/L	2	606-20-2	
1,2-Diphenylhydrazine*	Not detected	5		ug/L	2	122-66-7	
di-n-Octyl phthalate	Not detected	5		ug/L	2	117-84-0	
Fluoranthene	Not detected	1		ug/L	2	206-44-0	
Fluorene	Not detected	5		ug/L	2	86-73-7	
Hexachlorobenzene	Not detected	5		ug/L	2	118-74-1	
Hexachlorobutadiene	Not detected	10		ug/L	2	87-68-3	
Hexachlorocyclopentadiene*	Not detected	5		ug/L	2	77-47-4	
Hexachloroethane	Not detected	5		ug/L	2	67-72-1	
Indeno(1,2,3-cd)pyrene	Not detected	2		ug/L	2	193-39-5	
Isophorone	Not detected	5		ug/L	2	78-59-1	
2-Methylnaphthalene	Not detected	5		ug/L	2	91-57-6	
Naphthalene	Not detected	5		ug/L	2	91-20-3	
2-Nitroaniline	Not detected	25		ug/L	2	88-74-4	
3-Nitroaniline	Not detected	25		ug/L	2	99-09-2	
4-Nitroaniline	Not detected	25		ug/L	2	100-01-6	
Nitrobenzene	Not detected	5		ug/L	2	98-95-3	
2-Nitrophenol	Not detected	5		ug/L	2	88-75-5	
4-Nitrophenol	Not detected	25		ug/L	2	100-02-7	
N-Nitrosodiphenylamine	Not detected	5		ug/L	2	86-30-6	
N-Nitrosodi-n-propylamine	Not detected	5		ug/L	2	621-64-7	
Pentachlorophenol	Not detected	5		ug/L	2	87-86-5	
Phenanthrene	Not detected	2		ug/L	2	85-01-8	
Phenol	Not detected	5		ug/L	2	108-95-2	
Pyrene	Not detected	5		ug/L	2	129-00-0	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	2	120-82-1	
2,4,5-Trichlorophenol	Not detected	5		ug/L	2	95-95-4	
2,4,6-Trichlorophenol	Not detected	4		ug/L	2	88-06-2	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/20/24 21:19, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	8	1		ug/L	1	123-91-1	

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/17/24 03:27, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	

Lab Sample ID: S62137.09 (continued)
Sample Tag: DUP-02_051524

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/17/24 03:27, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	

Lab Sample ID: S62137.09 (continued)
Sample Tag: DUP-02_051524

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/17/24 03:27, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Analytical Laboratory Report

Lab Sample ID: S62137.10
Sample Tag: TW-15-12_051624
Collected Date/Time: 05/16/2024 09:25
Matrix: Groundwater
COC Reference: 1

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/21/24 11:20	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/20/24 21:44, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	Not detected	1		ug/L	1	123-91-1	

Lab Sample ID: S62137.11
Sample Tag: Trip Blank
Collected Date/Time: 05/14/2024 00:01
Matrix: Water
COC Reference: 1

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/17/24 11:15	NDK	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/17/24 01:28, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	

Lab Sample ID: S62137.11 (continued)
Sample Tag: Trip Blank

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/17/24 01:28, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Lab Sample ID: S62137.12
Sample Tag: MW-16-74_051424
Collected Date/Time: 05/14/2024 11:30
Matrix: Groundwater
COC Reference: 2

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/21/24 11:20	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/20/24 22:08, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	3	1		ug/L	1	123-91-1	

Lab Sample ID: S62137.13
Sample Tag: MW-16-77_051424
Collected Date/Time: 05/14/2024 13:15
Matrix: Groundwater
COC Reference: 2

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/21/24 11:20	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/21/24 03:01, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	Not detected	1		ug/L	1	123-91-1	

Lab Sample ID: S62137.14
Sample Tag: MW-16-78_051424
Collected Date/Time: 05/14/2024 15:00
Matrix: Groundwater
COC Reference: 2

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/21/24 11:20	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/21/24 03:25, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	Not detected	1		ug/L	1	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S62137.15
Sample Tag: MW-19-120_051424
Collected Date/Time: 05/14/2024 16:45
Matrix: Groundwater
COC Reference: 2

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/17/24 11:15	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/21/24 03:50, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	7	1		ug/L	1	123-91-1	

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/17/24 03:51, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	

Lab Sample ID: S62137.15 (continued)
Sample Tag: MW-19-120_051424

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/17/24 03:51, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Lab Sample ID: S62137.16
Sample Tag: MW-21-142_051524
Collected Date/Time: 05/15/2024 10:15
Matrix: Groundwater
COC Reference: 2

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/21/24 11:20	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/21/24 04:14, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	112	1		ug/L	1	123-91-1	

Lab Sample ID: S62137.17
Sample Tag: PW-14-01_051524
Collected Date/Time: 05/15/2024 12:10
Matrix: Groundwater
COC Reference: 2

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/21/24 11:20	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/21/24 04:39, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	Not detected	1		ug/L	1	123-91-1	

Lab Sample ID: S62137.18
Sample Tag: TW-14-02_051524
Collected Date/Time: 05/15/2024 15:35
Matrix: Groundwater
COC Reference: 2

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/17/24 11:15	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/21/24 05:04, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	161	1		ug/L	1	123-91-1	

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/17/24 04:15, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	

Lab Sample ID: S62137.18 (continued)
Sample Tag: TW-14-02_051524

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/17/24 04:15, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Lab Sample ID: S62137.19
Sample Tag: PW-14-02_051524
Collected Date/Time: 05/15/2024 13:55
Matrix: Groundwater
COC Reference: 2

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/17/24 11:15	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/21/24 05:28, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	84	1		ug/L	1	123-91-1	

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/17/24 04:39, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	

Lab Sample ID: S62137.19 (continued)
Sample Tag: PW-14-02_051524

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/17/24 04:39, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Lab Sample ID: S62137.20
Sample Tag: MW-13-43_051424
Collected Date/Time: 05/14/2024 10:25
Matrix: Groundwater
COC Reference: 3

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/21/24 11:20	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/21/24 05:53, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	3	1		ug/L	1	123-91-1	

Lab Sample ID: S62137.21
Sample Tag: MW-13-45_051424
Collected Date/Time: 05/14/2024 11:45
Matrix: Groundwater
COC Reference: 3

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/21/24 11:20	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/21/24 06:17, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	28	1		ug/L	1	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S62137.22
Sample Tag: MW-16-82_051424
Collected Date/Time: 05/14/2024 12:50
Matrix: Groundwater
COC Reference: 3

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/21/24 11:20	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/21/24 06:42, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	6	1		ug/L	1	123-91-1	

Lab Sample ID: S62137.23
Sample Tag: MW-16-84_051424
Collected Date/Time: 05/14/2024 14:10
Matrix: Groundwater
COC Reference: 3

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/21/24 11:20	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/20/24 22:32, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	32	1		ug/L	1	123-91-1	

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/20/24 16:15, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	

Lab Sample ID: S62137.23 (continued)
Sample Tag: MW-16-84_051424

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/20/24 16:15, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Lab Sample ID: S62137.24
Sample Tag: MW-16-84_051424 MS
Collected Date/Time: 05/14/2024 14:10
Matrix: Groundwater
COC Reference: 3

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/21/24 11:20	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/20/24 22:57, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	101	1		ug/L	1	123-91-1	1

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/20/24 22:30, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	54	10		ug/L	1	60-29-7	1
Acetone	55	50		ug/L	1	67-64-1	1
Methyl iodide	57	1		ug/L	1	74-88-4	1
Carbon disulfide	54	5		ug/L	1	75-15-0	1
tert-Methyl butyl ether (MTBE)	56	5		ug/L	1	1634-04-4	1
Acrylonitrile	53	2		ug/L	1	107-13-1	1
2-Butanone (MEK)	46	25		ug/L	1	78-93-3	1
Dichlorodifluoromethane	58	5		ug/L	1	75-71-8	1
Chloromethane	58	5		ug/L	1	74-87-3	1
Vinyl chloride	57	1		ug/L	1	75-01-4	1
Bromomethane	57	5		ug/L	1	74-83-9	1
Chloroethane	54	5		ug/L	1	75-00-3	1
Trichlorofluoromethane	58	1		ug/L	1	75-69-4	1
1,1-Dichloroethene	56	1		ug/L	1	75-35-4	1
Methylene chloride	55	5		ug/L	1	75-09-2	1
trans-1,2-Dichloroethene	56	1		ug/L	1	156-60-5	1
1,1-Dichloroethane	57	1		ug/L	1	75-34-3	1
cis-1,2-Dichloroethene	56	1		ug/L	1	156-59-2	1
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	1
Chloroform	55	1		ug/L	1	67-66-3	1
Bromochloromethane	56	1		ug/L	1	74-97-5	1
1,1,1-Trichloroethane	58	1		ug/L	1	71-55-6	1
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	1
2-Hexanone	Not detected	50		ug/L	1	591-78-6	1
Carbon tetrachloride	53	1		ug/L	1	56-23-5	1
Benzene	51	1		ug/L	1	71-43-2	1
1,2-Dichloroethane	51	1		ug/L	1	107-06-2	1
Trichloroethene	52	1		ug/L	1	79-01-6	1
1,2-Dichloropropane	51	1		ug/L	1	78-87-5	1
Bromodichloromethane	52	1		ug/L	1	75-27-4	1
Dibromomethane	52	5		ug/L	1	74-95-3	1
cis-1,3-Dichloropropene	51	1		ug/L	1	10061-01-5	1

1-Spiked at 50 ug/L

Lab Sample ID: S62137.24 (continued)
Sample Tag: MW-16-84_051424 MS

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/20/24 22:30, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Toluene	52	1		ug/L	1	108-88-3	1
trans-1,3-Dichloropropene	51	1		ug/L	1	10061-02-6	1
1,1,2-Trichloroethane	52	1		ug/L	1	79-00-5	1
Tetrachloroethene	53	1		ug/L	1	127-18-4	1
trans-1,4-Dichloro-2-butene	25	1		ug/L	1	110-57-6	1
Dibromochloromethane	53	5		ug/L	1	124-48-1	1
1,2-Dibromoethane	51	1		ug/L	1	106-93-4	1
Chlorobenzene	52	1		ug/L	1	108-90-7	1
1,1,1,2-Tetrachloroethane	52	1		ug/L	1	630-20-6	1
Ethylbenzene	52	1		ug/L	1	100-41-4	1
p,m-Xylene*	106	2		ug/L	1		1
o-Xylene	53	1		ug/L	1	95-47-6	1
Styrene	51	1		ug/L	1	100-42-5	1
Isopropylbenzene	53	5		ug/L	1	98-82-8	1
Bromoform	51	1		ug/L	1	75-25-2	1
1,1,2,2-Tetrachloroethane	51	1		ug/L	1	79-34-5	1
1,2,3-Trichloropropane	52	1		ug/L	1	96-18-4	1
n-Propylbenzene	53	1		ug/L	1	103-65-1	1
Bromobenzene	52	1		ug/L	1	108-86-1	1
1,3,5-Trimethylbenzene	52	1		ug/L	1	108-67-8	1
tert-Butylbenzene	52	1		ug/L	1	98-06-6	1
1,2,4-Trimethylbenzene	52	1		ug/L	1	95-63-6	1
sec-Butylbenzene	53	1		ug/L	1	135-98-8	1
p-Isopropyltoluene	53	5		ug/L	1	99-87-6	1
1,3-Dichlorobenzene	53	1		ug/L	1	541-73-1	1
1,4-Dichlorobenzene	53	1		ug/L	1	106-46-7	1
1,2-Dichlorobenzene	52	1		ug/L	1	95-50-1	1
1,2,3-Trimethylbenzene	52	1		ug/L	1	526-73-8	1
n-Butylbenzene	52	1		ug/L	1	104-51-8	1
Hexachloroethane	54	5		ug/L	1	67-72-1	1
1,2-Dibromo-3-chloropropane	50	5		ug/L	1	96-12-8	1
1,2,4-Trichlorobenzene	54	5		ug/L	1	120-82-1	1
1,2,3-Trichlorobenzene	54	5		ug/L	1	87-61-6	1
Naphthalene	54	5		ug/L	1	91-20-3	1
2-Methylnaphthalene	48	5		ug/L	1	91-57-6	1

1-Spiked at 50 ug/L

Lab Sample ID: S62137.25
Sample Tag: MW-16-84_051424 MSD
Collected Date/Time: 05/14/2024 14:10
Matrix: Groundwater
COC Reference: 3

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/21/24 11:20	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/20/24 23:21, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	87	1		ug/L	1	123-91-1	1

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/20/24 22:54, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	55	10		ug/L	1	60-29-7	1
Acetone	54	50		ug/L	1	67-64-1	1
Methyl iodide	57	1		ug/L	1	74-88-4	1
Carbon disulfide	53	5		ug/L	1	75-15-0	1
tert-Methyl butyl ether (MTBE)	57	5		ug/L	1	1634-04-4	1
Acrylonitrile	55	2		ug/L	1	107-13-1	1
2-Butanone (MEK)	48	25		ug/L	1	78-93-3	1
Dichlorodifluoromethane	55	5		ug/L	1	75-71-8	1
Chloromethane	56	5		ug/L	1	74-87-3	1
Vinyl chloride	54	1		ug/L	1	75-01-4	1
Bromomethane	55	5		ug/L	1	74-83-9	1
Chloroethane	52	5		ug/L	1	75-00-3	1
Trichlorofluoromethane	57	1		ug/L	1	75-69-4	1
1,1-Dichloroethene	55	1		ug/L	1	75-35-4	1
Methylene chloride	55	5		ug/L	1	75-09-2	1
trans-1,2-Dichloroethene	53	1		ug/L	1	156-60-5	1
1,1-Dichloroethane	55	1		ug/L	1	75-34-3	1
cis-1,2-Dichloroethene	55	1		ug/L	1	156-59-2	1
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	1
Chloroform	54	1		ug/L	1	67-66-3	1
Bromochloromethane	57	1		ug/L	1	74-97-5	1
1,1,1-Trichloroethane	56	1		ug/L	1	71-55-6	1
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	1
2-Hexanone	Not detected	50		ug/L	1	591-78-6	1
Carbon tetrachloride	52	1		ug/L	1	56-23-5	1
Benzene	50	1		ug/L	1	71-43-2	1
1,2-Dichloroethane	52	1		ug/L	1	107-06-2	1
Trichloroethene	51	1		ug/L	1	79-01-6	1
1,2-Dichloropropane	51	1		ug/L	1	78-87-5	1
Bromodichloromethane	54	1		ug/L	1	75-27-4	1
Dibromomethane	53	5		ug/L	1	74-95-3	1
cis-1,3-Dichloropropene	52	1		ug/L	1	10061-01-5	1

1-Spiked at 50 ug/L

Lab Sample ID: S62137.25 (continued)
Sample Tag: MW-16-84_051424 MSD

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/20/24 22:54, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Toluene	52	1		ug/L	1	108-88-3	1
trans-1,3-Dichloropropene	51	1		ug/L	1	10061-02-6	1
1,1,2-Trichloroethane	52	1		ug/L	1	79-00-5	1
Tetrachloroethene	52	1		ug/L	1	127-18-4	1
trans-1,4-Dichloro-2-butene	29	1		ug/L	1	110-57-6	1
Dibromochloromethane	52	5		ug/L	1	124-48-1	1
1,2-Dibromoethane	51	1		ug/L	1	106-93-4	1
Chlorobenzene	51	1		ug/L	1	108-90-7	1
1,1,1,2-Tetrachloroethane	52	1		ug/L	1	630-20-6	1
Ethylbenzene	50	1		ug/L	1	100-41-4	1
p,m-Xylene*	103	2		ug/L	1		1
o-Xylene	51	1		ug/L	1	95-47-6	1
Styrene	50	1		ug/L	1	100-42-5	1
Isopropylbenzene	51	5		ug/L	1	98-82-8	1
Bromoform	51	1		ug/L	1	75-25-2	1
1,1,2,2-Tetrachloroethane	50	1		ug/L	1	79-34-5	1
1,2,3-Trichloropropane	51	1		ug/L	1	96-18-4	1
n-Propylbenzene	51	1		ug/L	1	103-65-1	1
Bromobenzene	51	1		ug/L	1	108-86-1	1
1,3,5-Trimethylbenzene	51	1		ug/L	1	108-67-8	1
tert-Butylbenzene	51	1		ug/L	1	98-06-6	1
1,2,4-Trimethylbenzene	51	1		ug/L	1	95-63-6	1
sec-Butylbenzene	51	1		ug/L	1	135-98-8	1
p-Isopropyltoluene	51	5		ug/L	1	99-87-6	1
1,3-Dichlorobenzene	52	1		ug/L	1	541-73-1	1
1,4-Dichlorobenzene	51	1		ug/L	1	106-46-7	1
1,2-Dichlorobenzene	52	1		ug/L	1	95-50-1	1
1,2,3-Trimethylbenzene	51	1		ug/L	1	526-73-8	1
n-Butylbenzene	50	1		ug/L	1	104-51-8	1
Hexachloroethane	52	5		ug/L	1	67-72-1	1
1,2-Dibromo-3-chloropropane	50	5		ug/L	1	96-12-8	1
1,2,4-Trichlorobenzene	53	5		ug/L	1	120-82-1	1
1,2,3-Trichlorobenzene	55	5		ug/L	1	87-61-6	1
Naphthalene	54	5		ug/L	1	91-20-3	1
2-Methylnaphthalene	52	5		ug/L	1	91-57-6	1

1-Spiked at 50 ug/L

Analytical Laboratory Report

Lab Sample ID: S62137.26
Sample Tag: MW-17-86_051424
Collected Date/Time: 05/14/2024 15:25
Matrix: Groundwater
COC Reference: 3

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/17/24 11:15	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/21/24 07:06, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	16	1		ug/L	1	123-91-1	

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/17/24 05:02, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	

Lab Sample ID: S62137.26 (continued)
Sample Tag: MW-17-86_051424

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/17/24 05:02, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Analytical Laboratory Report

Lab Sample ID: S62137.27
Sample Tag: MW-20-127_051524
Collected Date/Time: 05/15/2024 09:35
Matrix: Groundwater
COC Reference: 3

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/21/24 11:20	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/21/24 07:31, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	171	1		ug/L	1	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S62137.28
Sample Tag: MW-20-128_051524
Collected Date/Time: 05/15/2024 11:00
Matrix: Groundwater
COC Reference: 3

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/21/24 11:20	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/21/24 15:41, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	2	1		ug/L	1	123-91-1	

Lab Sample ID: S62137.29
Sample Tag: MW-19-117_051524
Collected Date/Time: 05/15/2024 12:15
Matrix: Groundwater
COC Reference: 3

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/21/24 11:20	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/21/24 08:20, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	Not detected	1		ug/L	1	123-91-1	

Lab Sample ID: S62137.30
Sample Tag: MW-19-116_051524
Collected Date/Time: 05/15/2024 13:40
Matrix: Groundwater
COC Reference: 3

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/21/24 11:20	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/21/24 08:45, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	148	1		ug/L	1	123-91-1	

Lab Sample ID: S62137.31
Sample Tag: MW-19-115_051524
Collected Date/Time: 05/15/2024 14:30
Matrix: Groundwater
COC Reference: 3

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/21/24 11:20	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/21/24 09:09, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	8	1		ug/L	1	123-91-1	

Lab Sample ID: S62137.32
Sample Tag: MW-20-129_051524
Collected Date/Time: 05/15/2024 15:55
Matrix: Groundwater
COC Reference: 3

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/21/24 11:20	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/21/24 09:34, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	67	1		ug/L	1	123-91-1	

Lab Sample ID: S62137.33
Sample Tag: DUP-03_051524
Collected Date/Time: 05/15/2024 00:01
Matrix: Groundwater
COC Reference: 3

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/21/24 11:20	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/21/24 09:58, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	2	1		ug/L	1	123-91-1	

Quality Control Report

Report ID: S62137.01(01)+QC01
Generated on 05/23/2024

Report to

Attention: Kaitlyn Hunt
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 C:947-777-5215 FAX:

Report Produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S62137.01-S62137.33
Project: 30214036.0470B / RACER Lansing GWS
Submitted Date/Time: 05/16/2024 12:10
Sampled by: Austin Westhuis
P.O. #: US3460016187

QC Report Sections

Cover Page (Page 57)
Analysis Summary (Pages 58-90)
Prep Batch Summary (Pages 91-92)
Surrogates per Lab Sample (Pages 93-102)
Surrogates per QC Sample (Pages 103-108)
Internal Standards per Lab Sample (Pages 109-139)
Internal Standards per QC Sample (Pages 140-145)
Batch QC Results (Pages 146-166)

Report Flag Descriptions

*: QC result is outside of indicated control limits
W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.

Barbara Ball
Quality Assurance Manager

Lab Sample ID: S62137.01
Sample Tag: MW-19-121_051424
Collected Date/Time: 05/14/2024 11:25
Matrix: Groundwater
COC Reference: 1

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/20/24 18:04	K240520	VS240520W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S62137.02
Sample Tag: MW-19-122_051424
Collected Date/Time: 05/14/2024 13:05
Matrix: Groundwater
COC Reference: 1

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/20/24 18:29	K240520	VS240520W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S62137.03
Sample Tag: MW-19-123_051424
Collected Date/Time: 05/14/2024 15:45
Matrix: Groundwater
COC Reference: 1

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/20/24 18:53	K240520	VS240520W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S62137.04
Sample Tag: MW-19-124_051424
Collected Date/Time: 05/14/2024 16:50
Matrix: Groundwater
COC Reference: 1

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/20/24 19:18	K240520	VS240520W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S62137.05
Sample Tag: MW-16-75_051424
Collected Date/Time: 05/14/2024 16:45
Matrix: Groundwater
COC Reference: 1

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/21/24 15:17	K240521	VD240521W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S62137.06
Sample Tag: MW-14-61_051524
Collected Date/Time: 05/15/2024 10:35
Matrix: Groundwater
COC Reference: 1

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Semi-Volatiles						
Semi-Volatile Organics - MDEQ	SW8270D	05/22/24 15:45	P240522	SF240521W1	Yes	BLK/LCS/LCSD
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/20/24 20:07	K240520	VS240520W1	Yes	BLK/LCS/LCSD/MS/MS
Volatile Organics - DEQ List	SW5030C/8260C	05/17/24 02:16	240516B7	VF240516W6	Yes	BLK/LCS/LCSD

Lab Sample ID: S62137.07
Sample Tag: MW-15-72_051524
Collected Date/Time: 05/15/2024 12:15
Matrix: Groundwater
COC Reference: 1

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Semi-Volatiles						
Semi-Volatile Organics - MDEQ	SW8270D	05/22/24 16:16	P240522	SF240521W1	Yes	BLK/LCS/LCSD
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/20/24 20:31	K240520	VS240520W1	Yes	BLK/LCS/LCSD/MS/MS
Volatile Organics - DEQ List	SW5030C/8260C	05/17/24 02:40	240516B7	VF240516W6	Yes	BLK/LCS/LCSD

Lab Sample ID: S62137.08
Sample Tag: MW-16-81_051524
Collected Date/Time: 05/15/2024 13:40
Matrix: Groundwater
COC Reference: 1

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/20/24 20:55	K240520	VS240520W1	Yes	BLK/LCS/LCSD/MS/MS
Volatile Organics - DEQ List	SW5030C/8260C	05/17/24 03:04	240516B7	VF240516W6	Yes	BLK/LCS/LCSD

Lab Sample ID: S62137.09
Sample Tag: DUP-02_051524
Collected Date/Time: 05/15/2024 00:01
Matrix: Groundwater
COC Reference: 1

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Semi-Volatiles						
Semi-Volatile Organics - MDEQ	SW8270D	05/22/24 17:48	P240522	SF240521W1	Yes	BLK/LCS/LCSD
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/20/24 21:19	K240520	VS240520W1	Yes	BLK/LCS/LCSD/MS/MS
Volatile Organics - DEQ List	SW5030C/8260C	05/17/24 03:27	240516B7	VF240516W6	Yes	BLK/LCS/LCSD

Lab Sample ID: S62137.10

Sample Tag: TW-15-12_051624

Collected Date/Time: 05/16/2024 09:25

Matrix: Groundwater

COC Reference: 1

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/20/24 21:44	K240520	VS240520W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S62137.11

Sample Tag: Trip Blank

Collected Date/Time: 05/14/2024 00:01

Matrix: Water

COC Reference: 1

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	05/17/24 01:28	240516B7	VF240516W6	Yes	BLK/LCS/LCSD

Lab Sample ID: S62137.12
Sample Tag: MW-16-74_051424
Collected Date/Time: 05/14/2024 11:30
Matrix: Groundwater
COC Reference: 2

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/20/24 22:08	K240520	VS240520W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S62137.13
Sample Tag: MW-16-77_051424
Collected Date/Time: 05/14/2024 13:15
Matrix: Groundwater
COC Reference: 2

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/21/24 03:01	K240520B	VS240520W3	Yes	BLK/LCS/LCSD

Lab Sample ID: S62137.14
Sample Tag: MW-16-78_051424
Collected Date/Time: 05/14/2024 15:00
Matrix: Groundwater
COC Reference: 2

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/21/24 03:25	K240520B	VS240520W3	Yes	BLK/LCS/LCSD

Lab Sample ID: S62137.15
Sample Tag: MW-19-120_051424
Collected Date/Time: 05/14/2024 16:45
Matrix: Groundwater
COC Reference: 2

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/21/24 03:50	K240520B	VS240520W3	Yes	BLK/LCS/LCSD
Volatile Organics - DEQ List	SW5030C/8260C	05/17/24 03:51	240516B7	VF240516W6	Yes	BLK/LCS/LCSD

Lab Sample ID: S62137.16
Sample Tag: MW-21-142_051524
Collected Date/Time: 05/15/2024 10:15
Matrix: Groundwater
COC Reference: 2

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/21/24 04:14	K240520B	VS240520W3	Yes	BLK/LCS/LCSD

Lab Sample ID: S62137.17
Sample Tag: PW-14-01_051524
Collected Date/Time: 05/15/2024 12:10
Matrix: Groundwater
COC Reference: 2

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/21/24 04:39	K240520B	VS240520W3	Yes	BLK/LCS/LCSD

Lab Sample ID: S62137.18

Sample Tag: TW-14-02_051524

Collected Date/Time: 05/15/2024 15:35

Matrix: Groundwater

COC Reference: 2

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/21/24 05:04	K240520B	VS240520W3	Yes	BLK/LCS/LCSD
Volatile Organics - DEQ List	SW5030C/8260C	05/17/24 04:15	240516B7	VF240516W6	Yes	BLK/LCS/LCSD

Lab Sample ID: S62137.19

Sample Tag: PW-14-02_051524

Collected Date/Time: 05/15/2024 13:55

Matrix: Groundwater

COC Reference: 2

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/21/24 05:28	K240520B	VS240520W3	Yes	BLK/LCS/LCSD
Volatile Organics - DEQ List	SW5030C/8260C	05/17/24 04:39	240516B7	VF240516W6	Yes	BLK/LCS/LCSD

Lab Sample ID: S62137.20
Sample Tag: MW-13-43_051424
Collected Date/Time: 05/14/2024 10:25
Matrix: Groundwater
COC Reference: 3

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/21/24 05:53	K240520B	VS240520W3	Yes	BLK/LCS/LCSD

Lab Sample ID: S62137.21
Sample Tag: MW-13-45_051424
Collected Date/Time: 05/14/2024 11:45
Matrix: Groundwater
COC Reference: 3

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/21/24 06:17	K240520B	VS240520W3	Yes	BLK/LCS/LCSD

Lab Sample ID: S62137.22
Sample Tag: MW-16-82_051424
Collected Date/Time: 05/14/2024 12:50
Matrix: Groundwater
COC Reference: 3

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/21/24 06:42	K240520B	VS240520W3	Yes	BLK/LCS/LCSD

Lab Sample ID: S62137.23
Sample Tag: MW-16-84_051424
Collected Date/Time: 05/14/2024 14:10
Matrix: Groundwater
COC Reference: 3

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/20/24 22:32	K240520	VS240520W1	Yes	BLK/LCS/LCSD/MS/MS
Volatile Organics - DEQ List	SW5030C/8260C	05/20/24 16:15	240520A3	VF240520W2	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S62137.24

Sample Tag: MW-16-84_051424 MS

Collected Date/Time: 05/14/2024 14:10

Matrix: Groundwater

COC Reference: 3

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/20/24 22:57	K240520	VS240520W1	Yes	BLK/LCS/LCSD/MS/MS
Volatile Organics - DEQ List	SW5030C/8260C	05/20/24 22:30	240520A3	VF240520W2	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S62137.25

Sample Tag: MW-16-84_051424 MSD

Collected Date/Time: 05/14/2024 14:10

Matrix: Groundwater

COC Reference: 3

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/20/24 23:21	K240520	VS240520W1	Yes	BLK/LCS/LCSD/MS/MS
Volatile Organics - DEQ List	SW5030C/8260C	05/20/24 22:54	240520A3	VF240520W2	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S62137.26

Sample Tag: MW-17-86_051424

Collected Date/Time: 05/14/2024 15:25

Matrix: Groundwater

COC Reference: 3

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/21/24 07:06	K240520B	VS240520W3	Yes	BLK/LCS/LCSD
Volatile Organics - DEQ List	SW5030C/8260C	05/17/24 05:02	240516B7	VF240516W6	Yes	BLK/LCS/LCSD

Lab Sample ID: S62137.27
Sample Tag: MW-20-127_051524
Collected Date/Time: 05/15/2024 09:35
Matrix: Groundwater
COC Reference: 3

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/21/24 07:31	K240520B	VS240520W3	Yes	BLK/LCS/LCSD

Lab Sample ID: S62137.28
Sample Tag: MW-20-128_051524
Collected Date/Time: 05/15/2024 11:00
Matrix: Groundwater
COC Reference: 3

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/21/24 15:41	K240521	VD240521W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S62137.29
Sample Tag: MW-19-117_051524
Collected Date/Time: 05/15/2024 12:15
Matrix: Groundwater
COC Reference: 3

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/21/24 08:20	K240520B	VS240520W3	Yes	BLK/LCS/LCSD

Lab Sample ID: S62137.30
Sample Tag: MW-19-116_051524
Collected Date/Time: 05/15/2024 13:40
Matrix: Groundwater
COC Reference: 3

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/21/24 08:45	K240520B	VS240520W3	Yes	BLK/LCS/LCSD

Lab Sample ID: S62137.31
Sample Tag: MW-19-115_051524
Collected Date/Time: 05/15/2024 14:30
Matrix: Groundwater
COC Reference: 3

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/21/24 09:09	K240520B	VS240520W3	Yes	BLK/LCS/LCSD

Lab Sample ID: S62137.32
Sample Tag: MW-20-129_051524
Collected Date/Time: 05/15/2024 15:55
Matrix: Groundwater
COC Reference: 3

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/21/24 09:34	K240520B	VS240520W3	Yes	BLK/LCS/LCSD

Lab Sample ID: S62137.33
Sample Tag: DUP-03_051524
Collected Date/Time: 05/15/2024 00:01
Matrix: Groundwater
COC Reference: 3

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/21/24 09:58	K240520B	VS240520W3	Yes	BLK/LCS/LCSD

QC Report - Prep Batch Summary

Organics - Semi-Volatiles, Prep Batch ID: SF240521W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S62137.06	Semi-Volatile Organics - MDEQ	SW8270D	05/22/24 15:45	P240522
S62137.07	Semi-Volatile Organics - MDEQ	SW8270D	05/22/24 16:16	P240522
S62137.09	Semi-Volatile Organics - MDEQ	SW8270D	05/22/24 17:48	P240522

Organics - Volatiles, Prep Batch ID: VD240521W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S62137.05	1,4-Dioxane	SW8260B - SIM	05/21/24 15:17	K240521
S62137.28	1,4-Dioxane	SW8260B - SIM	05/21/24 15:41	K240521

Organics - Volatiles, Prep Batch ID: VF240516W6

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S62137.06	Volatile Organics - DEQ List	SW5030C/8260C	05/17/24 02:16	240516B7
S62137.07	Volatile Organics - DEQ List	SW5030C/8260C	05/17/24 02:40	240516B7
S62137.08	Volatile Organics - DEQ List	SW5030C/8260C	05/17/24 03:04	240516B7
S62137.09	Volatile Organics - DEQ List	SW5030C/8260C	05/17/24 03:27	240516B7
S62137.11	Volatile Organics - DEQ List	SW5030C/8260C	05/17/24 01:28	240516B7
S62137.15	Volatile Organics - DEQ List	SW5030C/8260C	05/17/24 03:51	240516B7
S62137.18	Volatile Organics - DEQ List	SW5030C/8260C	05/17/24 04:15	240516B7
S62137.19	Volatile Organics - DEQ List	SW5030C/8260C	05/17/24 04:39	240516B7
S62137.26	Volatile Organics - DEQ List	SW5030C/8260C	05/17/24 05:02	240516B7

Organics - Volatiles, Prep Batch ID: VF240520W2

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S62137.23	Volatile Organics - DEQ List	SW5030C/8260C	05/20/24 16:15	240520A3
S62137.24	Volatile Organics - DEQ List	SW5030C/8260C	05/20/24 22:30	240520A3
S62137.25	Volatile Organics - DEQ List	SW5030C/8260C	05/20/24 22:54	240520A3

Organics - Volatiles, Prep Batch ID: VS240520W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S62137.01	1,4-Dioxane	SW8260B - SIM	05/20/24 18:04	K240520
S62137.02	1,4-Dioxane	SW8260B - SIM	05/20/24 18:29	K240520
S62137.03	1,4-Dioxane	SW8260B - SIM	05/20/24 18:53	K240520
S62137.04	1,4-Dioxane	SW8260B - SIM	05/20/24 19:18	K240520
S62137.06	1,4-Dioxane	SW8260B - SIM	05/20/24 20:07	K240520
S62137.07	1,4-Dioxane	SW8260B - SIM	05/20/24 20:31	K240520
S62137.08	1,4-Dioxane	SW8260B - SIM	05/20/24 20:55	K240520
S62137.09	1,4-Dioxane	SW8260B - SIM	05/20/24 21:19	K240520
S62137.10	1,4-Dioxane	SW8260B - SIM	05/20/24 21:44	K240520
S62137.12	1,4-Dioxane	SW8260B - SIM	05/20/24 22:08	K240520
S62137.23	1,4-Dioxane	SW8260B - SIM	05/20/24 22:32	K240520
S62137.24	1,4-Dioxane	SW8260B - SIM	05/20/24 22:57	K240520
S62137.25	1,4-Dioxane	SW8260B - SIM	05/20/24 23:21	K240520

Organics - Volatiles, Prep Batch ID: VS240520W3

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S62137.13	1,4-Dioxane	SW8260B - SIM	05/21/24 03:01	K240520B
S62137.14	1,4-Dioxane	SW8260B - SIM	05/21/24 03:25	K240520B
S62137.15	1,4-Dioxane	SW8260B - SIM	05/21/24 03:50	K240520B
S62137.16	1,4-Dioxane	SW8260B - SIM	05/21/24 04:14	K240520B
S62137.17	1,4-Dioxane	SW8260B - SIM	05/21/24 04:39	K240520B
S62137.18	1,4-Dioxane	SW8260B - SIM	05/21/24 05:04	K240520B
S62137.19	1,4-Dioxane	SW8260B - SIM	05/21/24 05:28	K240520B
S62137.20	1,4-Dioxane	SW8260B - SIM	05/21/24 05:53	K240520B
S62137.21	1,4-Dioxane	SW8260B - SIM	05/21/24 06:17	K240520B
S62137.22	1,4-Dioxane	SW8260B - SIM	05/21/24 06:42	K240520B
S62137.26	1,4-Dioxane	SW8260B - SIM	05/21/24 07:06	K240520B
S62137.27	1,4-Dioxane	SW8260B - SIM	05/21/24 07:31	K240520B
S62137.29	1,4-Dioxane	SW8260B - SIM	05/21/24 08:20	K240520B
S62137.30	1,4-Dioxane	SW8260B - SIM	05/21/24 08:45	K240520B
S62137.31	1,4-Dioxane	SW8260B - SIM	05/21/24 09:09	K240520B
S62137.32	1,4-Dioxane	SW8260B - SIM	05/21/24 09:34	K240520B
S62137.33	1,4-Dioxane	SW8260B - SIM	05/21/24 09:58	K240520B

QC Report - Surrogates per Lab Sample

Lab Sample ID: S62137.06

Sample Tag: MW-14-61_051524

Collected Date/Time: 05/15/2024 10:35

Matrix: Groundwater

COC Reference: 1

Organics - Semi-Volatiles, Analysis: Semi-Volatile Organics - MDEQ

Run in Batch: P240522, Run Date: 05/22/2024 15:45, Matrix: WW, Dilution: 2

Surrogate	Flags	%Rec	LCL	UCL
2-Fluorophenol		**29.1**	10.0	110.0
Phenol-D5		**22.6**	10.0	110.0
Nitrobenzene-D5		**64.0**	10.0	114.0
2-Fluorobiphenyl		**67.5**	10.0	116.0
2,4,6-Tribromophenol		**58.7**	10.0	123.0
Terphenyl-D14		**75.2**	10.0	141.0

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240516B7, Run Date: 05/17/2024 02:16, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**102.0**	80.0	124.0
1,2-Dichloroethane-D4		**95.2**	72.0	125.0
Toluene-D8		**99.8**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S62137.07

Sample Tag: MW-15-72_051524

Collected Date/Time: 05/15/2024 12:15

Matrix: Groundwater

COC Reference: 1

Organics - Semi-Volatiles, Analysis: Semi-Volatile Organics - MDEQ

Run in Batch: P240522, Run Date: 05/22/2024 16:16, Matrix: WW, Dilution: 2

Surrogate	Flags	%Rec	LCL	UCL
2-Fluorophenol		**31.6**	10.0	110.0
Phenol-D5		**23.6**	10.0	110.0
Nitrobenzene-D5		**69.8**	10.0	114.0
2-Fluorobiphenyl		**73.2**	10.0	116.0
2,4,6-Tribromophenol		**66.9**	10.0	123.0
Terphenyl-D14		**75.1**	10.0	141.0

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240516B7, Run Date: 05/17/2024 02:40, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**99.4**	80.0	124.0
1,2-Dichloroethane-D4		**95.7**	72.0	125.0
Toluene-D8		**100.0**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S62137.08

Sample Tag: MW-16-81_051524

Collected Date/Time: 05/15/2024 13:40

Matrix: Groundwater

COC Reference: 1

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240516B7, Run Date: 05/17/2024 03:04, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**102.1**	80.0	124.0
1,2-Dichloroethane-D4		**95.4**	72.0	125.0
Toluene-D8		**100.2**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S62137.09

Sample Tag: DUP-02_051524

Collected Date/Time: 05/15/2024 00:01

Matrix: Groundwater

COC Reference: 1

Organics - Semi-Volatiles, Analysis: Semi-Volatile Organics - MDEQ

Run in Batch: P240522, Run Date: 05/22/2024 17:48, Matrix: WW, Dilution: 2

Surrogate	Flags	%Rec	LCL	UCL
2-Fluorophenol		**29.9**	10.0	110.0
Phenol-D5		**22.6**	10.0	110.0
Nitrobenzene-D5		**67.1**	10.0	114.0
2-Fluorobiphenyl		**68.1**	10.0	116.0
2,4,6-Tribromophenol		**59.4**	10.0	123.0
Terphenyl-D14		**71.5**	10.0	141.0

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240516B7, Run Date: 05/17/2024 03:27, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**102.0**	80.0	124.0
1,2-Dichloroethane-D4		**94.5**	72.0	125.0
Toluene-D8		**100.9**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S62137.11

Sample Tag: Trip Blank

Collected Date/Time: 05/14/2024 00:01

Matrix: Water

COC Reference: 1

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240516B7, Run Date: 05/17/2024 01:28, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**101.8**	80.0	124.0
1,2-Dichloroethane-D4		**93.0**	72.0	125.0
Toluene-D8		**99.3**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S62137.15

Sample Tag: MW-19-120_051424

Collected Date/Time: 05/14/2024 16:45

Matrix: Groundwater

COC Reference: 2

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240516B7, Run Date: 05/17/2024 03:51, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**101.1**	80.0	124.0
1,2-Dichloroethane-D4		**95.4**	72.0	125.0
Toluene-D8		**100.5**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S62137.18

Sample Tag: TW-14-02_051524

Collected Date/Time: 05/15/2024 15:35

Matrix: Groundwater

COC Reference: 2

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240516B7, Run Date: 05/17/2024 04:15, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**99.8**	80.0	124.0
1,2-Dichloroethane-D4		**96.0**	72.0	125.0
Toluene-D8		**105.6**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S62137.19

Sample Tag: PW-14-02_051524

Collected Date/Time: 05/15/2024 13:55

Matrix: Groundwater

COC Reference: 2

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240516B7, Run Date: 05/17/2024 04:39, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**107.6**	80.0	124.0
1,2-Dichloroethane-D4		**100.1**	72.0	125.0
Toluene-D8		**100.3**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S62137.23

Sample Tag: MW-16-84_051424

Collected Date/Time: 05/14/2024 14:10

Matrix: Groundwater

COC Reference: 3

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240520A3, Run Date: 05/20/2024 16:15, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**99.0**	80.0	124.0
1,2-Dichloroethane-D4		**115.4**	72.0	125.0
Toluene-D8		**101.0**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S62137.26

Sample Tag: MW-17-86_051424

Collected Date/Time: 05/14/2024 15:25

Matrix: Groundwater

COC Reference: 3

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240516B7, Run Date: 05/17/2024 05:02, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**101.3**	80.0	124.0
1,2-Dichloroethane-D4		**100.7**	72.0	125.0
Toluene-D8		**100.8**	89.0	112.0

Organics - Semi-Volatiles, Prep Batch ID: SF240521W1

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: P240522.BLKW21A

Run in Batch: P240522, Run Date: 05/22/2024 14:14, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
2-Fluorophenol		**27.9**	10.0	110.0
Phenol-D5		**21.5**	10.0	110.0
Nitrobenzene-D5		**57.8**	10.0	114.0
2-Fluorobiphenyl		**56.4**	10.0	116.0
2,4,6-Tribromophenol		**56.0**	10.0	123.0
Terphenyl-D14		**62.7**	10.0	141.0

Laboratory Control Sample (LCS)

Lab Sample ID: P240522.LCSW21A

Run in Batch: P240522, Run Date: 05/22/2024 14:44, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
2-Fluorophenol		**30.1**	10.0	110.0
Phenol-D5		**23.2**	10.0	110.0
Nitrobenzene-D5		**61.0**	10.0	114.0
2-Fluorobiphenyl		**61.8**	10.0	116.0
2,4,6-Tribromophenol		**62.2**	10.0	123.0
Terphenyl-D14		**63.5**	10.0	141.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: P240522.LCSDW21A, Parent Sample ID: P240522.LCSW21A

Run in Batch: P240522, Run Date: 05/22/2024 15:15, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
2-Fluorophenol		**29.7**	10.0	110.0
Phenol-D5		**23.6**	10.0	110.0
Nitrobenzene-D5		**59.1**	10.0	114.0
2-Fluorobiphenyl		**59.8**	10.0	116.0
2,4,6-Tribromophenol		**63.3**	10.0	123.0
Terphenyl-D14		**65.2**	10.0	141.0

QC Report - Surrogates per QC Sample

Organics - Volatiles, Prep Batch ID: VD240521W1

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: K240521.BLK21A

Run in Batch: K240521, Run Date: 05/21/2024 14:52, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample (LCS)

Lab Sample ID: K240521.LCS21A

Run in Batch: K240521, Run Date: 05/21/2024 13:14, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: K240521.LCSD21A, Parent Sample ID: K240521.LCS21A

Run in Batch: K240521, Run Date: 05/21/2024 13:39, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Matrix Spike (MS)

Lab Sample ID: K240521.6223309M, Parent Sample ID: S62233.08

Run in Batch: K240521, Run Date: 05/21/2024 22:38, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Matrix Spike Duplicate (MSD)

Lab Sample ID: K240521.6223310N, Parent Sample ID: K240521.6223309M

Run in Batch: K240521, Run Date: 05/21/2024 23:03, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Organics - Volatiles, Prep Batch ID: VF240516W6

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240516B7.BLKW16B

Run in Batch: 240516B7, Run Date: 05/17/2024 01:05, Prep Date: 05/16/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**101.5**	80.0	124.0
1,2-Dichloroethane-D4		**95.9**	72.0	125.0
Toluene-D8		**100.0**	89.0	112.0

Laboratory Control Sample (LCS)

Lab Sample ID: 240516B7.LCSW16B

Run in Batch: 240516B7, Run Date: 05/16/2024 23:30, Prep Date: 05/16/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**97.6**	80.0	124.0
1,2-Dichloroethane-D4		**94.7**	72.0	125.0
Toluene-D8		**100.2**	89.0	112.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240516B7.LCSDW16B, Parent Sample ID: 240516B7.LCSW16B

Run in Batch: 240516B7, Run Date: 05/16/2024 23:53, Prep Date: 05/16/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**98.6**	80.0	124.0
1,2-Dichloroethane-D4		**101.3**	72.0	125.0
Toluene-D8		**94.6**	89.0	112.0

Organics - Volatiles, Prep Batch ID: VF240520W2

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 240520A3.BLKW20A

Run in Batch: 240520A3, Run Date: 05/20/2024 15:05, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**96.1**	80.0	124.0
1,2-Dichloroethane-D4		**103.0**	72.0	125.0
Toluene-D8		**100.3**	89.0	112.0

Laboratory Control Sample (LCS)

Lab Sample ID: 240520A3.LCSW20A

Run in Batch: 240520A3, Run Date: 05/20/2024 13:31, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**100.7**	80.0	124.0
1,2-Dichloroethane-D4		**104.8**	72.0	125.0
Toluene-D8		**100.1**	89.0	112.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240520A3.LCSDW20A, Parent Sample ID: 240520A3.LCSW20A

Run in Batch: 240520A3, Run Date: 05/20/2024 13:55, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**100.0**	80.0	124.0
1,2-Dichloroethane-D4		**105.3**	72.0	125.0
Toluene-D8		**101.1**	89.0	112.0

Matrix Spike (MS)

Lab Sample ID: 240520A3.6213724M, Parent Sample ID: S62137.23

Run in Batch: 240520A3, Run Date: 05/20/2024 22:30, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**100.0**	80.0	124.0
1,2-Dichloroethane-D4		**110.5**	72.0	125.0
Toluene-D8		**100.6**	89.0	112.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 240520A3.6213725N, Parent Sample ID: 240520A3.6213724M

Run in Batch: 240520A3, Run Date: 05/20/2024 22:54, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**100.5**	80.0	124.0
1,2-Dichloroethane-D4		**113.3**	72.0	125.0
Toluene-D8		**102.0**	89.0	112.0

Organics - Volatiles, Prep Batch ID: VS240520W1

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: K240520.BLK20A

Run in Batch: K240520, Run Date: 05/20/2024 15:11, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample (LCS)

Lab Sample ID: K240520.LCS20A

Run in Batch: K240520, Run Date: 05/20/2024 13:34, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: K240520.LCSD20A, Parent Sample ID: K240520.LCS20A

Run in Batch: K240520, Run Date: 05/20/2024 13:58, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Matrix Spike (MS)

Lab Sample ID: K240520.6213724M, Parent Sample ID: S62137.23

Run in Batch: K240520, Run Date: 05/20/2024 22:57, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Matrix Spike Duplicate (MSD)

Lab Sample ID: K240520.6213725N, Parent Sample ID: K240520.6213724M

Run in Batch: K240520, Run Date: 05/20/2024 23:21, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Organics - Volatiles, Prep Batch ID: VS240520W3

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: K240520B.BLK20B

Run in Batch: K240520B, Run Date: 05/21/2024 02:36, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample (LCS)

Lab Sample ID: K240520B.LCS20B

Run in Batch: K240520B, Run Date: 05/21/2024 00:58, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: K240520B.LCSD20B, Parent Sample ID: K240520B.LCS20B

Run in Batch: K240520B, Run Date: 05/21/2024 01:23, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62137.01

Sample Tag: MW-19-121_051424

Collected Date/Time: 05/14/2024 11:25

Matrix: Groundwater

COC Reference: 1

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240520, Run Date: 05/20/2024 18:04, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**71.2**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62137.02

Sample Tag: MW-19-122_051424

Collected Date/Time: 05/14/2024 13:05

Matrix: Groundwater

COC Reference: 1

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240520, Run Date: 05/20/2024 18:29, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**86.9**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62137.03

Sample Tag: MW-19-123_051424

Collected Date/Time: 05/14/2024 15:45

Matrix: Groundwater

COC Reference: 1

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240520, Run Date: 05/20/2024 18:53, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**89.6**	50.0	200.0

Lab Sample ID: S62137.04

Sample Tag: MW-19-124_051424

Collected Date/Time: 05/14/2024 16:50

Matrix: Groundwater

COC Reference: 1

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240520, Run Date: 05/20/2024 19:18, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**89.9**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62137.05

Sample Tag: MW-16-75_051424

Collected Date/Time: 05/14/2024 16:45

Matrix: Groundwater

COC Reference: 1

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240521, Run Date: 05/21/2024 15:17, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**99.3**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62137.06

Sample Tag: MW-14-61_051524

Collected Date/Time: 05/15/2024 10:35

Matrix: Groundwater

COC Reference: 1

Organics - Semi-Volatiles, Analysis: Semi-Volatile Organics - MDEQ

Run in Batch: P240522, Run Date: 05/22/2024 15:45, Matrix: WW, Dilution: 2

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dichlorobenzene-D4		**104.8**	50.0	200.0
Naphthalene-D8		**105.7**	50.0	200.0
Acenaphthalene-D10		**100.7**	50.0	200.0
Phenanthrene-D10		**92.3**	50.0	200.0
Chrysene-D12		**84.4**	50.0	200.0
Perylene-D12		**85.7**	50.0	200.0

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240520, Run Date: 05/20/2024 20:07, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**87.5**	50.0	200.0

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240516B7, Run Date: 05/17/2024 02:16, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**101.7**	50.0	200.0
1,4-Difluorobenzene		**102.0**	50.0	200.0
Chlorobenzene-D5		**98.0**	50.0	200.0
1,4-Dichlorobenzene-D4		**100.7**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62137.07

Sample Tag: MW-15-72_051524

Collected Date/Time: 05/15/2024 12:15

Matrix: Groundwater

COC Reference: 1

Organics - Semi-Volatiles, Analysis: Semi-Volatile Organics - MDEQ

Run in Batch: P240522, Run Date: 05/22/2024 16:16, Matrix: WW, Dilution: 2

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dichlorobenzene-D4		**95.8**	50.0	200.0
Naphthalene-D8		**96.0**	50.0	200.0
Acenaphthalene-D10		**90.3**	50.0	200.0
Phenanthrene-D10		**87.5**	50.0	200.0
Chrysene-D12		**79.5**	50.0	200.0
Perylene-D12		**80.3**	50.0	200.0

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240520, Run Date: 05/20/2024 20:31, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**82.4**	50.0	200.0

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240516B7, Run Date: 05/17/2024 02:40, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**99.4**	50.0	200.0
1,4-Difluorobenzene		**99.6**	50.0	200.0
Chlorobenzene-D5		**102.5**	50.0	200.0
1,4-Dichlorobenzene-D4		**105.8**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62137.08

Sample Tag: MW-16-81_051524

Collected Date/Time: 05/15/2024 13:40

Matrix: Groundwater

COC Reference: 1

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240520, Run Date: 05/20/2024 20:55, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**80.0**	50.0	200.0

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240516B7, Run Date: 05/17/2024 03:04, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**99.9**	50.0	200.0
1,4-Difluorobenzene		**99.4**	50.0	200.0
Chlorobenzene-D5		**95.2**	50.0	200.0
1,4-Dichlorobenzene-D4		**101.9**	50.0	200.0

Lab Sample ID: S62137.09

Sample Tag: DUP-02_051524

Collected Date/Time: 05/15/2024 00:01

Matrix: Groundwater

COC Reference: 1

Organics - Semi-Volatiles, Analysis: Semi-Volatile Organics - MDEQ

Run in Batch: P240522, Run Date: 05/22/2024 17:48, Matrix: WW, Dilution: 2

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dichlorobenzene-D4		**99.7**	50.0	200.0
Naphthalene-D8		**100.0**	50.0	200.0
Acenaphthalene-D10		**95.3**	50.0	200.0
Phenanthrene-D10		**89.4**	50.0	200.0
Chrysene-D12		**78.8**	50.0	200.0
Perylene-D12		**81.4**	50.0	200.0

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240520, Run Date: 05/20/2024 21:19, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**90.2**	50.0	200.0

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240516B7, Run Date: 05/17/2024 03:27, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**101.2**	50.0	200.0
1,4-Difluorobenzene		**100.6**	50.0	200.0
Chlorobenzene-D5		**97.2**	50.0	200.0
1,4-Dichlorobenzene-D4		**101.0**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62137.10

Sample Tag: TW-15-12_051624

Collected Date/Time: 05/16/2024 09:25

Matrix: Groundwater

COC Reference: 1

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240520, Run Date: 05/20/2024 21:44, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**111.3**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62137.11

Sample Tag: Trip Blank

Collected Date/Time: 05/14/2024 00:01

Matrix: Water

COC Reference: 1

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240516B7, Run Date: 05/17/2024 01:28, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**100.2**	50.0	200.0
1,4-Difluorobenzene		**99.8**	50.0	200.0
Chlorobenzene-D5		**93.7**	50.0	200.0
1,4-Dichlorobenzene-D4		**96.1**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62137.12

Sample Tag: MW-16-74_051424

Collected Date/Time: 05/14/2024 11:30

Matrix: Groundwater

COC Reference: 2

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240520, Run Date: 05/20/2024 22:08, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**96.2**	50.0	200.0

Lab Sample ID: S62137.13

Sample Tag: MW-16-77_051424

Collected Date/Time: 05/14/2024 13:15

Matrix: Groundwater

COC Reference: 2

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240520B, Run Date: 05/21/2024 03:01, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**82.2**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62137.14

Sample Tag: MW-16-78_051424

Collected Date/Time: 05/14/2024 15:00

Matrix: Groundwater

COC Reference: 2

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240520B, Run Date: 05/21/2024 03:25, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**111.8**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62137.15

Sample Tag: MW-19-120_051424

Collected Date/Time: 05/14/2024 16:45

Matrix: Groundwater

COC Reference: 2

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240520B, Run Date: 05/21/2024 03:50, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**89.6**	50.0	200.0

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240516B7, Run Date: 05/17/2024 03:51, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**101.9**	50.0	200.0
1,4-Difluorobenzene		**101.5**	50.0	200.0
Chlorobenzene-D5		**98.1**	50.0	200.0
1,4-Dichlorobenzene-D4		**100.5**	50.0	200.0

Lab Sample ID: S62137.16

Sample Tag: MW-21-142_051524

Collected Date/Time: 05/15/2024 10:15

Matrix: Groundwater

COC Reference: 2

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240520B, Run Date: 05/21/2024 04:14, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**83.5**	50.0	200.0

Lab Sample ID: S62137.17

Sample Tag: PW-14-01_051524

Collected Date/Time: 05/15/2024 12:10

Matrix: Groundwater

COC Reference: 2

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240520B, Run Date: 05/21/2024 04:39, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**98.0**	50.0	200.0

Lab Sample ID: S62137.18

Sample Tag: TW-14-02_051524

Collected Date/Time: 05/15/2024 15:35

Matrix: Groundwater

COC Reference: 2

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240520B, Run Date: 05/21/2024 05:04, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**99.8**	50.0	200.0

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240516B7, Run Date: 05/17/2024 04:15, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**100.9**	50.0	200.0
1,4-Difluorobenzene		**101.9**	50.0	200.0
Chlorobenzene-D5		**105.0**	50.0	200.0
1,4-Dichlorobenzene-D4		**104.0**	50.0	200.0

Lab Sample ID: S62137.19

Sample Tag: PW-14-02_051524

Collected Date/Time: 05/15/2024 13:55

Matrix: Groundwater

COC Reference: 2

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240520B, Run Date: 05/21/2024 05:28, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**82.1**	50.0	200.0

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240516B7, Run Date: 05/17/2024 04:39, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**104.0**	50.0	200.0
1,4-Difluorobenzene		**105.5**	50.0	200.0
Chlorobenzene-D5		**103.4**	50.0	200.0
1,4-Dichlorobenzene-D4		**114.2**	50.0	200.0

Lab Sample ID: S62137.20

Sample Tag: MW-13-43_051424

Collected Date/Time: 05/14/2024 10:25

Matrix: Groundwater

COC Reference: 3

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240520B, Run Date: 05/21/2024 05:53, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**94.1**	50.0	200.0

Lab Sample ID: S62137.21

Sample Tag: MW-13-45_051424

Collected Date/Time: 05/14/2024 11:45

Matrix: Groundwater

COC Reference: 3

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240520B, Run Date: 05/21/2024 06:17, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**97.4**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62137.22

Sample Tag: MW-16-82_051424

Collected Date/Time: 05/14/2024 12:50

Matrix: Groundwater

COC Reference: 3

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240520B, Run Date: 05/21/2024 06:42, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**93.8**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62137.23

Sample Tag: MW-16-84_051424

Collected Date/Time: 05/14/2024 14:10

Matrix: Groundwater

COC Reference: 3

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240520, Run Date: 05/20/2024 22:32, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**84.4**	50.0	200.0

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240520A3, Run Date: 05/20/2024 16:15, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**90.7**	50.0	200.0
1,4-Difluorobenzene		**96.9**	50.0	200.0
Chlorobenzene-D5		**99.5**	50.0	200.0
1,4-Dichlorobenzene-D4		**95.9**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62137.26

Sample Tag: MW-17-86_051424

Collected Date/Time: 05/14/2024 15:25

Matrix: Groundwater

COC Reference: 3

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240520B, Run Date: 05/21/2024 07:06, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**96.9**	50.0	200.0

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240516B7, Run Date: 05/17/2024 05:02, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**103.2**	50.0	200.0
1,4-Difluorobenzene		**104.5**	50.0	200.0
Chlorobenzene-D5		**102.2**	50.0	200.0
1,4-Dichlorobenzene-D4		**106.1**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62137.27

Sample Tag: MW-20-127_051524

Collected Date/Time: 05/15/2024 09:35

Matrix: Groundwater

COC Reference: 3

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240520B, Run Date: 05/21/2024 07:31, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**87.1**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62137.28

Sample Tag: MW-20-128_051524

Collected Date/Time: 05/15/2024 11:00

Matrix: Groundwater

COC Reference: 3

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240521, Run Date: 05/21/2024 15:41, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**88.9**	50.0	200.0

Lab Sample ID: S62137.29

Sample Tag: MW-19-117_051524

Collected Date/Time: 05/15/2024 12:15

Matrix: Groundwater

COC Reference: 3

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240520B, Run Date: 05/21/2024 08:20, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**89.7**	50.0	200.0

Lab Sample ID: S62137.30

Sample Tag: MW-19-116_051524

Collected Date/Time: 05/15/2024 13:40

Matrix: Groundwater

COC Reference: 3

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240520B, Run Date: 05/21/2024 08:45, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**67.1**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62137.31

Sample Tag: MW-19-115_051524

Collected Date/Time: 05/15/2024 14:30

Matrix: Groundwater

COC Reference: 3

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240520B, Run Date: 05/21/2024 09:09, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**91.8**	50.0	200.0

Lab Sample ID: S62137.32

Sample Tag: MW-20-129_051524

Collected Date/Time: 05/15/2024 15:55

Matrix: Groundwater

COC Reference: 3

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240520B, Run Date: 05/21/2024 09:34, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**97.3**	50.0	200.0

Lab Sample ID: S62137.33

Sample Tag: DUP-03_051524

Collected Date/Time: 05/15/2024 00:01

Matrix: Groundwater

COC Reference: 3

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240520B, Run Date: 05/21/2024 09:58, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**88.0**	50.0	200.0

Organics - Semi-Volatiles, Prep Batch ID: SF240521W1

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: P240522.BLKW21A

Run in Batch: P240522, Run Date: 05/22/2024 14:14, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dichlorobenzene-D4		**120.1**	50.0	200.0
Naphthalene-D8		**124.0**	50.0	200.0
Acenaphthalene-D10		**117.2**	50.0	200.0
Phenanthrene-D10		**109.0**	50.0	200.0
Chrysene-D12		**97.5**	50.0	200.0
Perylene-D12		**101.5**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: P240522.LCSW21A

Run in Batch: P240522, Run Date: 05/22/2024 14:44, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dichlorobenzene-D4		**114.5**	50.0	200.0
Naphthalene-D8		**114.3**	50.0	200.0
Acenaphthalene-D10		**107.9**	50.0	200.0
Phenanthrene-D10		**110.3**	50.0	200.0
Chrysene-D12		**103.2**	50.0	200.0
Perylene-D12		**114.6**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: P240522.LCSDW21A, Parent Sample ID: P240522.LCSW21A

Run in Batch: P240522, Run Date: 05/22/2024 15:15, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dichlorobenzene-D4		**115.0**	50.0	200.0
Naphthalene-D8		**115.8**	50.0	200.0
Acenaphthalene-D10		**110.9**	50.0	200.0
Phenanthrene-D10		**111.0**	50.0	200.0
Chrysene-D12		**106.3**	50.0	200.0
Perylene-D12		**114.1**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VD240521W1

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: K240521.BLK21A

Run in Batch: K240521, Run Date: 05/21/2024 14:52, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**91.3**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: K240521.LCS21A

Run in Batch: K240521, Run Date: 05/21/2024 13:14, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**88.6**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: K240521.LCSD21A, Parent Sample ID: K240521.LCS21A

Run in Batch: K240521, Run Date: 05/21/2024 13:39, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**93.5**	50.0	200.0

Matrix Spike (MS)

Lab Sample ID: K240521.6223309M, Parent Sample ID: S62233.08

Run in Batch: K240521, Run Date: 05/21/2024 22:38, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**95.5**	50.0	200.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: K240521.6223310N, Parent Sample ID: K240521.6223309M

Run in Batch: K240521, Run Date: 05/21/2024 23:03, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**100.7**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VF240516W6

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240516B7.BLKW16B

Run in Batch: 240516B7, Run Date: 05/17/2024 01:05, Prep Date: 05/16/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**104.1**	50.0	200.0
1,4-Difluorobenzene		**104.0**	50.0	200.0
Chlorobenzene-D5		**99.5**	50.0	200.0
1,4-Dichlorobenzene-D4		**103.7**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 240516B7.LCSW16B

Run in Batch: 240516B7, Run Date: 05/16/2024 23:30, Prep Date: 05/16/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**97.6**	50.0	200.0
1,4-Difluorobenzene		**95.0**	50.0	200.0
Chlorobenzene-D5		**91.6**	50.0	200.0
1,4-Dichlorobenzene-D4		**90.7**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240516B7.LCSDW16B, Parent Sample ID: 240516B7.LCSW16B

Run in Batch: 240516B7, Run Date: 05/16/2024 23:53, Prep Date: 05/16/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**105.8**	50.0	200.0
1,4-Difluorobenzene		**106.9**	50.0	200.0
Chlorobenzene-D5		**98.8**	50.0	200.0
1,4-Dichlorobenzene-D4		**99.1**	50.0	200.0

QC Report - Internal Standards per QC Sample

Organics - Volatiles, Prep Batch ID: VF240520W2

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 240520A3.BLKW20A

Run in Batch: 240520A3, Run Date: 05/20/2024 15:05, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**91.8**	50.0	200.0
1,4-Difluorobenzene		**94.7**	50.0	200.0
Chlorobenzene-D5		**94.7**	50.0	200.0
1,4-Dichlorobenzene-D4		**89.8**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 240520A3.LCSW20A

Run in Batch: 240520A3, Run Date: 05/20/2024 13:31, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**95.1**	50.0	200.0
1,4-Difluorobenzene		**95.2**	50.0	200.0
Chlorobenzene-D5		**93.8**	50.0	200.0
1,4-Dichlorobenzene-D4		**92.7**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240520A3.LCSDW20A, Parent Sample ID: 240520A3.LCSW20A

Run in Batch: 240520A3, Run Date: 05/20/2024 13:55, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**96.4**	50.0	200.0
1,4-Difluorobenzene		**96.3**	50.0	200.0
Chlorobenzene-D5		**95.4**	50.0	200.0
1,4-Dichlorobenzene-D4		**93.0**	50.0	200.0

Matrix Spike (MS)

Lab Sample ID: 240520A3.6213724M, Parent Sample ID: S62137.23

Run in Batch: 240520A3, Run Date: 05/20/2024 22:30, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**89.3**	50.0	200.0
1,4-Difluorobenzene		**94.2**	50.0	200.0
Chlorobenzene-D5		**93.4**	50.0	200.0
1,4-Dichlorobenzene-D4		**91.4**	50.0	200.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 240520A3.6213725N, Parent Sample ID: 240520A3.6213724M

Run in Batch: 240520A3, Run Date: 05/20/2024 22:54, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**87.4**	50.0	200.0
1,4-Difluorobenzene		**91.1**	50.0	200.0
Chlorobenzene-D5		**92.5**	50.0	200.0
1,4-Dichlorobenzene-D4		**92.3**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VS240520W1

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: K240520.BLK20A

Run in Batch: K240520, Run Date: 05/20/2024 15:11, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**92.7**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: K240520.LCS20A

Run in Batch: K240520, Run Date: 05/20/2024 13:34, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**88.3**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: K240520.LCSD20A, Parent Sample ID: K240520.LCS20A

Run in Batch: K240520, Run Date: 05/20/2024 13:58, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**90.8**	50.0	200.0

Matrix Spike (MS)

Lab Sample ID: K240520.6213724M, Parent Sample ID: S62137.23

Run in Batch: K240520, Run Date: 05/20/2024 22:57, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**76.3**	50.0	200.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: K240520.6213725N, Parent Sample ID: K240520.6213724M

Run in Batch: K240520, Run Date: 05/20/2024 23:21, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**92.6**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VS240520W3

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: K240520B.BLK20B

Run in Batch: K240520B, Run Date: 05/21/2024 02:36, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**78.2**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: K240520B.LCS20B

Run in Batch: K240520B, Run Date: 05/21/2024 00:58, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**101.0**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: K240520B.LCSD20B, Parent Sample ID: K240520B.LCS20B

Run in Batch: K240520B, Run Date: 05/21/2024 01:23, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**82.9**	50.0	200.0

Organics - Semi-Volatiles, Prep Batch ID: SF240521W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: P240522.BLKW21A

Run in Batch: P240522, Run Date: 05/22/2024 14:14, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Acenaphthene		ND	0.50	ug/l
Acenaphthylene		ND	0.50	ug/l
Anthracene		ND	0.50	ug/l
Benzo(a)anthracene		ND	0.50	ug/l
Benzo(b)fluoranthene		ND	0.50	ug/l
Benzo(k)fluoranthene		ND	0.50	ug/l
Benzo(ghi)perylene		ND	0.50	ug/l
Benzo(a)pyrene		ND	0.50	ug/l
bis(2-Chloroethoxy)methane		ND	0.50	ug/l
bis(2-Chloroethyl)ether		ND	0.50	ug/l
bis(2-Chloroisopropyl)ether		ND	0.50	ug/l
bis(2-Ethylhexyl)phthalate	*	0.52	0.50	ug/l
4-Bromophenyl phenyl ether		ND	0.50	ug/l
Butyl benzyl phthalate		ND	0.50	ug/l
4-Chloroaniline		ND	0.50	ug/l
2-Chloronaphthalene		ND	0.50	ug/l
4-Chloro-3-methylphenol		ND	0.50	ug/l
2-Chlorophenol		ND	0.50	ug/l
4-Chlorophenyl phenyl ether		ND	0.50	ug/l
Chrysene		ND	0.50	ug/l
3-, 4-Methylphenol (p,m-Cresol)		ND	0.50	ug/l
2-Methylphenol (o-Cresol)		ND	0.50	ug/l
Dibenzo(ah)anthracene		ND	0.50	ug/l
Dibenzofuran		ND	0.50	ug/l
di-n-Butyl phthalate	*	0.52	0.50	ug/l
1,2-Dichlorobenzene		ND	0.50	ug/l
1,3-Dichlorobenzene		ND	0.50	ug/l
1,4-Dichlorobenzene		ND	0.50	ug/l
3,3'-Dichlorobenzidine		ND	0.50	ug/l
2,4-Dichlorophenol		ND	0.50	ug/l
Diethyl phthalate		ND	0.50	ug/l
2,4-Dimethylphenol		ND	0.50	ug/l
Dimethyl phthalate		ND	0.50	ug/l
4,6-Dinitro-2-methylphenol		ND	0.50	ug/l
2,4-Dinitrophenol		ND	0.50	ug/l
2,4-Dinitrotoluene		ND	0.50	ug/l
2,6-Dinitrotoluene		ND	0.50	ug/l
1,2-Diphenylhydrazine		ND	0.50	ug/l
di-n-Octyl phthalate		ND	0.50	ug/l
Fluoranthene		ND	0.50	ug/l
Fluorene		ND	0.50	ug/l
Hexachlorobenzene		ND	0.50	ug/l
Hexachlorobutadiene		ND	0.50	ug/l
Hexachlorocyclopentadiene		ND	0.50	ug/l
Hexachloroethane		ND	0.50	ug/l
Indeno(1,2,3-cd)pyrene		ND	0.50	ug/l

Organics - Semi-Volatiles, Prep Batch ID: SF240521W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK) (continued)

Lab Sample ID: P240522.BLKW21A

Run in Batch: P240522, Run Date: 05/22/2024 14:14, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Isophorone		ND	0.50	ug/l
2-Methylnaphthalene		ND	0.50	ug/l
Naphthalene		ND	0.50	ug/l
2-Nitroaniline		ND	0.50	ug/l
3-Nitroaniline		ND	0.50	ug/l
4-Nitroaniline		ND	0.50	ug/l
Nitrobenzene		ND	0.50	ug/l
2-Nitrophenol		ND	0.50	ug/l
4-Nitrophenol		ND	0.50	ug/l
N-Nitrosodiphenylamine		ND	0.50	ug/l
N-Nitrosodi-n-propylamine		ND	0.50	ug/l
Pentachlorophenol		ND	0.50	ug/l
Phenanthrene		ND	0.50	ug/l
Phenol		ND	0.50	ug/l
Pyrene		ND	0.50	ug/l
1,2,4-Trichlorobenzene		ND	0.50	ug/l
2,4,5-Trichlorophenol		ND	0.50	ug/l
2,4,6-Trichlorophenol		ND	0.50	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: P240522.LCSW21A

Run in Batch: P240522, Run Date: 05/22/2024 14:44, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Acenaphthene		62.7	27	111
Acenaphthylene		61.6	16	116
Anthracene		63.5	31	119
Benzo(a)anthracene		67.3	35	119
Benzo(b)fluoranthene		63.7	27	129
Benzo(k)fluoranthene		62.7	36	120
Benzo(ghi)perylene		58.1	31	126
Benzo(a)pyrene		61.3	32	121
bis(2-Chloroethoxy)methane		59.1	23	106
bis(2-Chloroethyl)ether		53.1	29	94
bis(2-Chloroisopropyl)ether		53.4	23	91
bis(2-Ethylhexyl)phthalate		71.8	35	121
4-Bromophenyl phenyl ether		62.9	27	122
Butyl benzyl phthalate		66.6	36	117
4-Chloroaniline		44.4	19	91
2-Chloronaphthalene		58.8	21	109
4-Chloro-3-methylphenol		58.3	36	105
2-Chlorophenol		48.4	24	94
4-Chlorophenyl phenyl ether		65.2	31	114
Chrysene		65.6	34	119
3-, 4-Methylphenol (p,m-Cresol)		41.0	21	90
2-Methylphenol (o-Cresol)		41.9	23	79
Dibenzo(ah)anthracene		57.9	32	119

Organics - Semi-Volatiles, Prep Batch ID: SF240521W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: P240522.LCSW21A

Run in Batch: P240522, Run Date: 05/22/2024 14:44, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Dibenzofuran		63.7	29	115
di-n-Butyl phthalate		65.1	34	121
1,2-Dichlorobenzene		44.1	11	88
1,3-Dichlorobenzene		41.2	10	85
1,4-Dichlorobenzene		41.9	10	85
3,3'-Dichlorobenzidine		53.3	27	110
2,4-Dichlorophenol		60.3	33	106
Diethyl phthalate		64.5	36	116
2,4-Dimethylphenol		53.6	30	105
Dimethyl phthalate		64.8	35	116
4,6-Dinitro-2-methylphenol		64.5	19	116
2,4-Dinitrophenol		73.4	10	125
2,4-Dinitrotoluene		63.9	33	119
2,6-Dinitrotoluene		64.0	34	117
1,2-Diphenylhydrazine		63.9	34	113
di-n-Octyl phthalate		69.8	30	133
Fluoranthene		66.7	35	121
Fluorene		64.0	32	114
Hexachlorobenzene		61.1	26	126
Hexachlorobutadiene		41.0	10	95
Hexachlorocyclopentadiene		43.6	10	90
Hexachloroethane		37.9	10	82
Indeno(1,2,3-cd)pyrene		58.6	31	124
Isophorone		59.5	26	104
2-Methylnaphthalene		53.2	21	103
Naphthalene		52.9	21	99
2-Nitroaniline		62.8	34	111
3-Nitroaniline		48.2	34	111
4-Nitroaniline		54.9	34	100
Nitrobenzene		57.8	30	98
2-Nitrophenol		61.9	31	108
4-Nitrophenol		29.6	10	90
N-Nitrosodiphenylamine		64.2	31	120
N-Nitrosodi-n-propylamine		58.4	33	102
Pentachlorophenol		50.2	10	108
Phenanthrene		63.2	35	113
Phenol		22.8	10	43
Pyrene		68.3	33	120
1,2,4-Trichlorobenzene		46.1	10	98
2,4,5-Trichlorophenol		66.4	31	120
2,4,6-Trichlorophenol		67.8	31	114

Organics - Semi-Volatiles, Prep Batch ID: SF240521W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: P240522.LCSDW21A, Parent Sample ID: P240522.LCSW21A

Run in Batch: P240522, Run Date: 05/22/2024 15:15, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Acenaphthene		57.9	27	111	8.0	30.0
Acenaphthylene		59.7	16	116	3.1	30.0
Anthracene		64.7	31	119	1.9	30.0
Benzo(a)anthracene		66.6	35	119	1.0	30.0
Benzo(b)fluoranthene		66.1	27	129	3.7	30.0
Benzo(k)fluoranthene		65.2	36	120	3.8	30.0
Benzo(ghi)perylene		58.4	31	126	0.4	30.0
Benzo(a)pyrene		64.3	32	121	4.8	30.0
bis(2-Chloroethoxy)methane		57.4	23	106	2.9	30.0
bis(2-Chloroethyl)ether		51.8	29	94	2.5	30.0
bis(2-Chloroisopropyl)ether		51.3	23	91	3.9	30.0
bis(2-Ethylhexyl)phthalate		71.5	35	121	0.4	30.0
4-Bromophenyl phenyl ether		62.1	27	122	1.2	30.0
Butyl benzyl phthalate		66.2	36	117	0.7	30.0
4-Chloroaniline		41.3	19	91	7.4	30.0
2-Chloronaphthalene		55.9	21	109	5.2	30.0
4-Chloro-3-methylphenol		58.9	36	105	1.1	30.0
2-Chlorophenol		46.8	24	94	3.3	30.0
4-Chlorophenyl phenyl ether		64.2	31	114	1.5	30.0
Chrysene		66.7	34	119	1.7	30.0
3-, 4-Methylphenol (p,m-Cresol)		41.4	21	90	0.9	30.0
2-Methylphenol (o-Cresol)		42.2	23	79	0.7	30.0
Dibenzo(ah)anthracene		58.9	32	119	1.7	30.0
Dibenzofuran		60.3	29	115	5.4	30.0
di-n-Butyl phthalate		66.2	34	121	1.7	30.0
1,2-Dichlorobenzene		40.5	11	88	8.4	30.0
1,3-Dichlorobenzene		37.8	10	85	8.6	30.0
1,4-Dichlorobenzene		38.1	10	85	9.6	30.0
3,3'-Dichlorobenzidine		51.2	27	110	3.9	30.0
2,4-Dichlorophenol		57.6	33	106	4.6	30.0
Diethyl phthalate		64.7	36	116	0.2	30.0
2,4-Dimethylphenol		52.8	30	105	1.5	30.0
Dimethyl phthalate		63.7	35	116	1.7	30.0
4,6-Dinitro-2-methylphenol		68.4	19	116	5.9	30.0
2,4-Dinitrophenol		73.8	10	125	0.7	30.0
2,4-Dinitrotoluene		63.4	33	119	0.9	30.0
2,6-Dinitrotoluene		63.4	34	117	0.9	30.0
1,2-Diphenylhydrazine		65.5	34	113	2.5	30.0
di-n-Octyl phthalate		70.3	30	133	0.7	30.0
Fluoranthene		66.0	35	121	1.1	30.0
Fluorene		62.7	32	114	2.0	30.0
Hexachlorobenzene		64.6	26	126	5.6	30.0
Hexachlorobutadiene		36.9	10	95	10.6	30.0
Hexachlorocyclopentadiene		37.9	10	90	14.0	30.0
Hexachloroethane		34.4	10	82	9.7	30.0
Indeno(1,2,3-cd)pyrene		59.0	31	124	0.7	30.0

Organics - Semi-Volatiles, Prep Batch ID: SF240521W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: P240522.LCSDW21A, Parent Sample ID: P240522.LCSW21A

Run in Batch: P240522, Run Date: 05/22/2024 15:15, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Isophorone		58.9	26	104	1.0	30.0
2-Methylnaphthalene		50.7	21	103	4.9	30.0
Naphthalene		49.8	21	99	6.1	30.0
2-Nitroaniline		62.7	34	111	0.1	30.0
3-Nitroaniline		45.4	34	111	5.9	30.0
4-Nitroaniline		54.5	34	100	0.8	30.0
Nitrobenzene		56.8	30	98	1.9	30.0
2-Nitrophenol		60.0	31	108	3.2	30.0
4-Nitrophenol		30.5	10	90	3.1	30.0
N-Nitrosodiphenylamine		64.3	31	120	0.2	30.0
N-Nitrosodi-n-propylamine		57.5	33	102	1.4	30.0
Pentachlorophenol		53.5	10	108	6.5	30.0
Phenanthrene		62.2	35	113	1.6	30.0
Phenol		22.8	10	43	0.2	30.0
Pyrene		68.0	33	120	0.4	30.0
1,2,4-Trichlorobenzene		42.4	10	98	8.4	30.0
2,4,5-Trichlorophenol		64.4	31	120	3.1	30.0
2,4,6-Trichlorophenol		65.8	31	114	3.0	30.0

Organics - Volatiles, Prep Batch ID: VD240521W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: K240521.BLK21A

Run in Batch: K240521, Run Date: 05/21/2024 14:52, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
1,4-Dioxane	*	0.0312	0.02	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: K240521.LCS21A

Run in Batch: K240521, Run Date: 05/21/2024 13:14, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		104.0	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: K240521.LCSD21A, Parent Sample ID: K240521.LCS21A

Run in Batch: K240521, Run Date: 05/21/2024 13:39, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		108.1	70.0	130.0	3.8	30.0

Matrix Spike (MS)

Lab Sample ID: K240521.6223309M, Parent Sample ID: S62233.08

Run in Batch: K240521, Run Date: 05/21/2024 22:38, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		85.2	70.0	130.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: K240521.6223310N, Parent Sample ID: K240521.6223309M

Run in Batch: K240521, Run Date: 05/21/2024 23:03, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		113.9	70.0	130.0	18.2	30.0

Organics - Volatiles, Prep Batch ID: VF240516W6

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240516B7.BLKW16B

Run in Batch: 240516B7, Run Date: 05/17/2024 01:05, Prep Date: 05/16/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Diethyl ether		ND	1.00	ug/l
Acetone		ND	10.00	ug/l
Methyl iodide		ND	1.00	ug/l
Carbon disulfide		ND	1.00	ug/l
tert-Methyl butyl ether (MTBE)		ND	1.00	ug/l
Acrylonitrile		ND	1.00	ug/l
2-Butanone (MEK)		ND	10.00	ug/l
Dichlorodifluoromethane		ND	1.00	ug/l
Chloromethane		ND	1.00	ug/l
Vinyl chloride		ND	1.00	ug/l
Bromomethane		ND	1.00	ug/l
Chloroethane		ND	1.00	ug/l
Trichlorofluoromethane		ND	1.00	ug/l
1,1-Dichloroethene		ND	1.00	ug/l
Methylene chloride		ND	1.00	ug/l
trans-1,2-Dichloroethene		ND	1.00	ug/l
1,1-Dichloroethane		ND	1.00	ug/l
cis-1,2-Dichloroethene		ND	1.00	ug/l
Tetrahydrofuran		ND	10.00	ug/l
Chloroform		ND	1.00	ug/l
Bromochloromethane		ND	1.00	ug/l
1,1,1-Trichloroethane		ND	1.00	ug/l
4-Methyl-2-pentanone (MIBK)		ND	10.00	ug/l
2-Hexanone		ND	10.00	ug/l
Carbon tetrachloride		ND	1.00	ug/l
Benzene		ND	1.00	ug/l
1,2-Dichloroethane		ND	1.00	ug/l
Trichloroethene		ND	1.00	ug/l
1,2-Dichloropropane		ND	1.00	ug/l
Bromodichloromethane		ND	1.00	ug/l
Dibromomethane		ND	1.00	ug/l
cis-1,3-Dichloropropene		ND	1.00	ug/l
Toluene		ND	1.00	ug/l
trans-1,3-Dichloropropene		ND	1.00	ug/l
1,1,2-Trichloroethane		ND	1.00	ug/l
Tetrachloroethene		ND	1.00	ug/l
trans-1,4-Dichloro-2-butene		ND	1.00	ug/l
Dibromochloromethane		ND	1.00	ug/l
1,2-Dibromoethane		ND	1.00	ug/l
Chlorobenzene		ND	1.00	ug/l
1,1,1,2-Tetrachloroethane		ND	1.00	ug/l
Ethylbenzene		ND	1.00	ug/l
p,m-Xylene		ND	2.00	ug/l
o-Xylene		ND	1.00	ug/l
Styrene		ND	1.00	ug/l
Isopropylbenzene		ND	1.00	ug/l

Organics - Volatiles, Prep Batch ID: VF240516W6 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK) (continued)

Lab Sample ID: 240516B7.BLKW16B

Run in Batch: 240516B7, Run Date: 05/17/2024 01:05, Prep Date: 05/16/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Bromoform		ND	1.00	ug/l
1,1,2,2-Tetrachloroethane		ND	1.00	ug/l
1,2,3-Trichloropropane		ND	1.00	ug/l
n-Propylbenzene		ND	1.00	ug/l
Bromobenzene		ND	1.00	ug/l
1,3,5-Trimethylbenzene		ND	1.00	ug/l
tert-Butylbenzene		ND	1.00	ug/l
1,2,4-Trimethylbenzene		ND	1.00	ug/l
sec-Butylbenzene		ND	1.00	ug/l
p-Isopropyltoluene		ND	1.00	ug/l
1,3-Dichlorobenzene		ND	1.00	ug/l
1,4-Dichlorobenzene		ND	1.00	ug/l
1,2-Dichlorobenzene		ND	1.00	ug/l
1,2,3-Trimethylbenzene		ND	1.00	ug/l
n-Butylbenzene		ND	1.00	ug/l
Hexachloroethane		ND	1.00	ug/l
1,2-Dibromo-3-chloropropane		ND	1.00	ug/l
1,2,4-Trichlorobenzene		ND	1.00	ug/l
1,2,3-Trichlorobenzene		ND	1.00	ug/l
Naphthalene		ND	1.00	ug/l
2-Methylnaphthalene		ND	1.00	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 240516B7.LCSW16B

Run in Batch: 240516B7, Run Date: 05/16/2024 23:30, Prep Date: 05/16/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Diethyl ether		98.7	67.4	121.2
Acetone		109.0	29.9	161.5
Methyl iodide		108.9	68.8	116.4
Carbon disulfide		101.2	63.8	137.4
tert-Methyl butyl ether (MTBE)		114.8	73.2	122.4
Acrylonitrile		116.5	69.9	128.9
2-Butanone (MEK)		107.5	44.0	134.4
Dichlorodifluoromethane		83.4	10.0	222.8
Chloromethane		112.3	23.8	166.5
Vinyl chloride		102.8	43.5	149.1
Bromomethane		121.0	56.8	151.3
Chloroethane		107.1	53.4	149.4
Trichlorofluoromethane		108.5	59.7	151.8
1,1-Dichloroethene		103.1	69.6	139.4
Methylene chloride		109.1	73.3	121.1
trans-1,2-Dichloroethene		105.8	73.6	129.3
1,1-Dichloroethane		107.0	71.5	126.2
cis-1,2-Dichloroethene		107.0	76.6	122.1
Tetrahydrofuran		110.3	59.0	117.9
Chloroform		97.0	78.4	124.0

Organics - Volatiles, Prep Batch ID: VF240516W6 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 240516B7.LCSW16B

Run in Batch: 240516B7, Run Date: 05/16/2024 23:30, Prep Date: 05/16/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Bromochloromethane		105.1	78.2	120.8
1,1,1-Trichloroethane		98.4	79.4	130.9
4-Methyl-2-pentanone (MIBK)		110.2	71.6	125.2
2-Hexanone		108.2	55.4	136.9
Carbon tetrachloride		98.9	72.6	133.0
Benzene		98.5	79.9	124.9
1,2-Dichloroethane		96.5	76.0	126.3
Trichloroethene		97.1	79.7	124.2
1,2-Dichloropropane		98.1	78.6	126.4
Bromodichloromethane		90.4	80.4	128.2
Dibromomethane		103.0	76.9	122.1
cis-1,3-Dichloropropene		99.2	79.8	129.9
Toluene		98.1	79.8	124.5
trans-1,3-Dichloropropene		101.5	74.0	131.3
1,1,2-Trichloroethane		100.2	78.7	123.1
Tetrachloroethene		95.0	74.5	124.5
trans-1,4-Dichloro-2-butene		106.1	68.6	135.4
Dibromochloromethane		102.6	74.6	127.2
1,2-Dibromoethane		100.2	70.3	133.7
Chlorobenzene		97.2	79.2	122.7
1,1,1,2-Tetrachloroethane		102.0	80.3	128.2
Ethylbenzene		97.6	79.5	129.1
p,m-Xylene		97.3	79.4	132.2
o-Xylene		99.1	80.2	131.0
Styrene		99.6	69.5	126.7
Isopropylbenzene		96.4	74.4	121.5
Bromoform		101.9	69.4	128.0
1,1,2,2-Tetrachloroethane		102.4	79.8	126.3
1,2,3-Trichloropropane		100.8	78.3	138.8
n-Propylbenzene		95.6	82.0	130.7
Bromobenzene		98.7	78.7	124.6
1,3,5-Trimethylbenzene		98.1	81.3	128.9
tert-Butylbenzene		94.7	80.7	128.9
1,2,4-Trimethylbenzene		97.2	81.4	130.8
sec-Butylbenzene		95.9	77.4	129.8
p-Isopropyltoluene		98.9	79.8	137.5
1,3-Dichlorobenzene		99.6	77.0	131.3
1,4-Dichlorobenzene		99.0	20.7	137.7
1,2-Dichlorobenzene		101.3	10.0	166.2
1,2,3-Trimethylbenzene		109.9	76.3	124.2
n-Butylbenzene		96.8	80.0	133.3
Hexachloroethane		108.9	23.8	138.1
1,2-Dibromo-3-chloropropane		96.4	21.2	189.4
1,2,4-Trichlorobenzene		106.2	27.4	143.4
1,2,3-Trichlorobenzene		110.0	75.4	131.4
Naphthalene		116.5	32.9	135.8

Organics - Volatiles, Prep Batch ID: VF240516W6 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 240516B7.LCSW16B

Run in Batch: 240516B7, Run Date: 05/16/2024 23:30, Prep Date: 05/16/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
2-Methylnaphthalene		125.9	25.5	165.5

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240516B7.LCSDW16B, Parent Sample ID: 240516B7.LCSW16B

Run in Batch: 240516B7, Run Date: 05/16/2024 23:53, Prep Date: 05/16/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Diethyl ether		95.6	67.4	121.2	3.2	30.0
Acetone		103.3	29.9	161.5	5.4	30.0
Methyl iodide		104.3	68.8	116.4	4.3	30.0
Carbon disulfide		96.1	63.8	137.4	5.2	30.0
tert-Methyl butyl ether (MTBE)		111.3	73.2	122.4	3.1	30.0
Acrylonitrile		109.5	69.9	128.9	6.2	30.0
2-Butanone (MEK)		102.1	44.0	134.4	5.1	30.0
Dichlorodifluoromethane		76.4	10.0	222.8	8.7	30.0
Chloromethane		100.5	23.8	166.5	11.1	30.0
Vinyl chloride		93.9	43.5	149.1	9.0	30.0
Bromomethane		110.7	56.8	151.3	8.9	30.0
Chloroethane		98.1	53.4	149.4	8.8	30.0
Trichlorofluoromethane		98.4	59.7	151.8	9.8	30.0
1,1-Dichloroethene		93.5	69.6	139.4	9.8	30.0
Methylene chloride		104.4	73.3	121.1	4.4	30.0
trans-1,2-Dichloroethene		99.3	73.6	129.3	6.4	30.0
1,1-Dichloroethane		99.9	71.5	126.2	6.9	30.0
cis-1,2-Dichloroethene		102.1	76.6	122.1	4.7	30.0
Tetrahydrofuran	*	74.5	59.0	117.9	38.8	30.0
Chloroform		99.0	78.4	124.0	2.1	30.0
Bromochloromethane		106.4	78.2	120.8	1.2	30.0
1,1,1-Trichloroethane		96.5	79.4	130.9	2.0	30.0
4-Methyl-2-pentanone (MIBK)		105.1	71.6	125.2	4.7	30.0
2-Hexanone		100.3	55.4	136.9	7.6	30.0
Carbon tetrachloride		92.4	72.6	133.0	6.8	30.0
Benzene		96.0	79.9	124.9	2.5	30.0
1,2-Dichloroethane		96.2	76.0	126.3	0.3	30.0
Trichloroethene		93.5	79.7	124.2	3.7	30.0
1,2-Dichloropropane		98.5	78.6	126.4	0.4	30.0
Bromodichloromethane		100.9	80.4	128.2	10.9	30.0
Dibromomethane		100.1	76.9	122.1	2.8	30.0
cis-1,3-Dichloropropene		99.3	79.8	129.9	0.1	30.0
Toluene		89.4	79.8	124.5	9.3	30.0
trans-1,3-Dichloropropene		96.1	74.0	131.3	5.4	30.0
1,1,2-Trichloroethane		93.6	78.7	123.1	6.8	30.0
Tetrachloroethene		84.6	74.5	124.5	11.5	30.0
trans-1,4-Dichloro-2-butene		102.5	68.6	135.4	3.5	30.0
Dibromochloromethane		101.3	74.6	127.2	1.3	30.0
1,2-Dibromoethane		97.5	70.3	133.7	2.7	30.0
Chlorobenzene		93.7	79.2	122.7	3.7	30.0

Organics - Volatiles, Prep Batch ID: VF240516W6 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: 240516B7.LCSDW16B, Parent Sample ID: 240516B7.LCSW16B

Run in Batch: 240516B7, Run Date: 05/16/2024 23:53, Prep Date: 05/16/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,1,1,2-Tetrachloroethane		99.5	80.3	128.2	2.4	30.0
Ethylbenzene		91.8	79.5	129.1	6.1	30.0
p,m-Xylene		92.3	79.4	132.2	5.3	30.0
o-Xylene		94.6	80.2	131.0	4.7	30.0
Styrene		96.0	69.5	126.7	3.8	30.0
Isopropylbenzene		90.8	74.4	121.5	6.0	30.0
Bromoform		100.0	69.4	128.0	1.9	30.0
1,1,2,2-Tetrachloroethane		99.4	79.8	126.3	3.0	30.0
1,2,3-Trichloropropane		97.0	78.3	138.8	3.8	30.0
n-Propylbenzene		88.5	82.0	130.7	7.8	30.0
Bromobenzene		96.7	78.7	124.6	2.0	30.0
1,3,5-Trimethylbenzene		92.9	81.3	128.9	5.4	30.0
tert-Butylbenzene		90.5	80.7	128.9	4.6	30.0
1,2,4-Trimethylbenzene		92.2	81.4	130.8	5.3	30.0
sec-Butylbenzene		89.5	77.4	129.8	6.9	30.0
p-Isopropyltoluene		90.8	79.8	137.5	8.5	30.0
1,3-Dichlorobenzene		96.1	77.0	131.3	3.6	30.0
1,4-Dichlorobenzene		94.3	20.7	137.7	4.9	30.0
1,2-Dichlorobenzene		97.9	10.0	166.2	3.4	30.0
1,2,3-Trimethylbenzene		104.6	76.3	124.2	4.9	30.0
n-Butylbenzene		89.7	80.0	133.3	7.7	30.0
Hexachloroethane		104.1	23.8	138.1	4.5	30.0
1,2-Dibromo-3-chloropropane		90.8	21.2	189.4	5.9	30.0
1,2,4-Trichlorobenzene		104.4	27.4	143.4	1.8	30.0
1,2,3-Trichlorobenzene		106.0	75.4	131.4	3.7	30.0
Naphthalene		111.7	32.9	135.8	4.2	30.0
2-Methylnaphthalene		120.7	25.5	165.5	4.2	30.0

Organics - Volatiles, Prep Batch ID: VF240520W2

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 240520A3.BLKW20A

Run in Batch: 240520A3, Run Date: 05/20/2024 15:05, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Diethyl ether		ND	1.00	ug/l
Acetone		ND	10.00	ug/l
Methyl iodide		ND	1.00	ug/l
Carbon disulfide		ND	1.00	ug/l
tert-Methyl butyl ether (MTBE)		ND	1.00	ug/l
Acrylonitrile		ND	1.00	ug/l
2-Butanone (MEK)		ND	10.00	ug/l
Dichlorodifluoromethane		ND	1.00	ug/l
Chloromethane		ND	1.00	ug/l
Vinyl chloride		ND	1.00	ug/l
Bromomethane		ND	1.00	ug/l
Chloroethane		ND	1.00	ug/l
Trichlorofluoromethane		ND	1.00	ug/l
1,1-Dichloroethene		ND	1.00	ug/l
Methylene chloride		ND	1.00	ug/l
trans-1,2-Dichloroethene		ND	1.00	ug/l
1,1-Dichloroethane		ND	1.00	ug/l
cis-1,2-Dichloroethene		ND	1.00	ug/l
Tetrahydrofuran		ND	10.00	ug/l
Chloroform		ND	1.00	ug/l
Bromochloromethane		ND	1.00	ug/l
1,1,1-Trichloroethane		ND	1.00	ug/l
4-Methyl-2-pentanone (MIBK)		ND	10.00	ug/l
2-Hexanone		ND	10.00	ug/l
Carbon tetrachloride		ND	1.00	ug/l
Benzene		ND	1.00	ug/l
1,2-Dichloroethane		ND	1.00	ug/l
Trichloroethene		ND	1.00	ug/l
1,2-Dichloropropane		ND	1.00	ug/l
Bromodichloromethane		ND	1.00	ug/l
Dibromomethane		ND	1.00	ug/l
cis-1,3-Dichloropropene		ND	1.00	ug/l
Toluene		ND	1.00	ug/l
trans-1,3-Dichloropropene		ND	1.00	ug/l
1,1,2-Trichloroethane		ND	1.00	ug/l
Tetrachloroethene		ND	1.00	ug/l
trans-1,4-Dichloro-2-butene		ND	1.00	ug/l
Dibromochloromethane		ND	1.00	ug/l
1,2-Dibromoethane		ND	1.00	ug/l
Chlorobenzene		ND	1.00	ug/l
1,1,1,2-Tetrachloroethane		ND	1.00	ug/l
Ethylbenzene		ND	1.00	ug/l
p,m-Xylene		ND	2.00	ug/l
o-Xylene		ND	1.00	ug/l
Styrene		ND	1.00	ug/l
Isopropylbenzene		ND	1.00	ug/l

Organics - Volatiles, Prep Batch ID: VF240520W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK) (continued)

Lab Sample ID: 240520A3.BLKW20A

Run in Batch: 240520A3, Run Date: 05/20/2024 15:05, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Bromoform		ND	1.00	ug/l
1,1,2,2-Tetrachloroethane		ND	1.00	ug/l
1,2,3-Trichloropropane		ND	1.00	ug/l
n-Propylbenzene		ND	1.00	ug/l
Bromobenzene		ND	1.00	ug/l
1,3,5-Trimethylbenzene		ND	1.00	ug/l
tert-Butylbenzene		ND	1.00	ug/l
1,2,4-Trimethylbenzene		ND	1.00	ug/l
sec-Butylbenzene		ND	1.00	ug/l
p-Isopropyltoluene		ND	1.00	ug/l
1,3-Dichlorobenzene		ND	1.00	ug/l
1,4-Dichlorobenzene		ND	1.00	ug/l
1,2-Dichlorobenzene		ND	1.00	ug/l
1,2,3-Trimethylbenzene		ND	1.00	ug/l
n-Butylbenzene		ND	1.00	ug/l
Hexachloroethane		ND	1.00	ug/l
1,2-Dibromo-3-chloropropane		ND	1.00	ug/l
1,2,4-Trichlorobenzene		ND	1.00	ug/l
1,2,3-Trichlorobenzene		ND	1.00	ug/l
Naphthalene		ND	1.00	ug/l
2-Methylnaphthalene		ND	1.00	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 240520A3.LCSW20A

Run in Batch: 240520A3, Run Date: 05/20/2024 13:31, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Diethyl ether		110.7	67.4	121.2
Acetone		110.5	29.9	161.5
Methyl iodide		111.2	68.8	116.4
Carbon disulfide		107.2	63.8	137.4
tert-Methyl butyl ether (MTBE)		114.6	73.2	122.4
Acrylonitrile		111.4	69.9	128.9
2-Butanone (MEK)		99.1	44.0	134.4
Dichlorodifluoromethane		110.5	10.0	222.8
Chloromethane		111.3	23.8	166.5
Vinyl chloride		113.2	43.5	149.1
Bromomethane		112.7	56.8	151.3
Chloroethane		115.5	53.4	149.4
Trichlorofluoromethane		114.2	59.7	151.8
1,1-Dichloroethene		110.2	69.6	139.4
Methylene chloride		110.9	73.3	121.1
trans-1,2-Dichloroethene		110.3	73.6	129.3
1,1-Dichloroethane		112.6	71.5	126.2
cis-1,2-Dichloroethene		111.9	76.6	122.1
Tetrahydrofuran		97.5	59.0	117.9
Chloroform		108.4	78.4	124.0

Organics - Volatiles, Prep Batch ID: VF240520W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 240520A3.LCSW20A

Run in Batch: 240520A3, Run Date: 05/20/2024 13:31, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Bromochloromethane		112.1	78.2	120.8
1,1,1-Trichloroethane		112.3	79.4	130.9
4-Methyl-2-pentanone (MIBK)		103.2	71.6	125.2
2-Hexanone		106.5	55.4	136.9
Carbon tetrachloride		108.3	72.6	133.0
Benzene		107.5	79.9	124.9
1,2-Dichloroethane		106.9	76.0	126.3
Trichloroethene		106.4	79.7	124.2
1,2-Dichloropropane		108.0	78.6	126.4
Bromodichloromethane		98.3	80.4	128.2
Dibromomethane		107.7	76.9	122.1
cis-1,3-Dichloropropene		112.1	79.8	129.9
Toluene		109.0	79.8	124.5
trans-1,3-Dichloropropene		111.5	74.0	131.3
1,1,2-Trichloroethane		108.8	78.7	123.1
Tetrachloroethene		108.3	74.5	124.5
trans-1,4-Dichloro-2-butene		119.8	68.6	135.4
Dibromochloromethane		111.9	74.6	127.2
1,2-Dibromoethane		109.6	70.3	133.7
Chlorobenzene		109.6	79.2	122.7
1,1,1,2-Tetrachloroethane		111.3	80.3	128.2
Ethylbenzene		108.7	79.5	129.1
p,m-Xylene		109.9	79.4	132.2
o-Xylene		109.4	80.2	131.0
Styrene		112.3	69.5	126.7
Isopropylbenzene		109.7	74.4	121.5
Bromoform		111.3	69.4	128.0
1,1,2,2-Tetrachloroethane		108.1	79.8	126.3
1,2,3-Trichloropropane		107.0	78.3	138.8
n-Propylbenzene		111.7	82.0	130.7
Bromobenzene		109.2	78.7	124.6
1,3,5-Trimethylbenzene		109.7	81.3	128.9
tert-Butylbenzene		109.3	80.7	128.9
1,2,4-Trimethylbenzene		110.7	81.4	130.8
sec-Butylbenzene		112.4	77.4	129.8
p-Isopropyltoluene		112.1	79.8	137.5
1,3-Dichlorobenzene		110.7	77.0	131.3
1,4-Dichlorobenzene		110.3	20.7	137.7
1,2-Dichlorobenzene		110.7	10.0	166.2
1,2,3-Trimethylbenzene		109.9	76.3	124.2
n-Butylbenzene		112.0	80.0	133.3
Hexachloroethane		117.9	23.8	138.1
1,2-Dibromo-3-chloropropane		112.4	21.2	189.4
1,2,4-Trichlorobenzene		116.2	27.4	143.4
1,2,3-Trichlorobenzene		116.8	75.4	131.4
Naphthalene		116.5	32.9	135.8

Organics - Volatiles, Prep Batch ID: VF240520W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 240520A3.LCSW20A

Run in Batch: 240520A3, Run Date: 05/20/2024 13:31, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
2-Methylnaphthalene		117.5	25.5	165.5

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240520A3.LCSDW20A, Parent Sample ID: 240520A3.LCSW20A

Run in Batch: 240520A3, Run Date: 05/20/2024 13:55, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Diethyl ether		108.0	67.4	121.2	2.5	30.0
Acetone		107.2	29.9	161.5	3.0	30.0
Methyl iodide		105.1	68.8	116.4	5.7	30.0
Carbon disulfide		100.0	63.8	137.4	6.9	30.0
tert-Methyl butyl ether (MTBE)		112.0	73.2	122.4	2.4	30.0
Acrylonitrile		108.2	69.9	128.9	2.9	30.0
2-Butanone (MEK)		105.4	44.0	134.4	6.1	30.0
Dichlorodifluoromethane		103.0	10.0	222.8	7.1	30.0
Chloromethane		94.1	23.8	166.5	16.7	30.0
Vinyl chloride		104.4	43.5	149.1	8.1	30.0
Bromomethane		106.4	56.8	151.3	5.7	30.0
Chloroethane		104.7	53.4	149.4	9.7	30.0
Trichlorofluoromethane		106.4	59.7	151.8	7.0	30.0
1,1-Dichloroethene		105.4	69.6	139.4	4.5	30.0
Methylene chloride		105.1	73.3	121.1	5.3	30.0
trans-1,2-Dichloroethene		105.5	73.6	129.3	4.4	30.0
1,1-Dichloroethane		107.9	71.5	126.2	4.3	30.0
cis-1,2-Dichloroethene		107.4	76.6	122.1	4.1	30.0
Tetrahydrofuran		98.2	59.0	117.9	0.7	30.0
Chloroform		103.9	78.4	124.0	4.2	30.0
Bromochloromethane		107.3	78.2	120.8	4.4	30.0
1,1,1-Trichloroethane		106.6	79.4	130.9	5.2	30.0
4-Methyl-2-pentanone (MIBK)		106.5	71.6	125.2	3.1	30.0
2-Hexanone		106.7	55.4	136.9	0.1	30.0
Carbon tetrachloride		103.7	72.6	133.0	4.3	30.0
Benzene		103.8	79.9	124.9	3.5	30.0
1,2-Dichloroethane		104.0	76.0	126.3	2.7	30.0
Trichloroethene		104.0	79.7	124.2	2.3	30.0
1,2-Dichloropropane		103.4	78.6	126.4	4.4	30.0
Bromodichloromethane		106.7	80.4	128.2	8.2	30.0
Dibromomethane		105.5	76.9	122.1	2.1	30.0
cis-1,3-Dichloropropene		107.1	79.8	129.9	4.6	30.0
Toluene		104.8	79.8	124.5	3.9	30.0
trans-1,3-Dichloropropene		107.8	74.0	131.3	3.5	30.0
1,1,2-Trichloroethane		105.3	78.7	123.1	3.3	30.0
Tetrachloroethene		104.6	74.5	124.5	3.5	30.0
trans-1,4-Dichloro-2-butene		117.6	68.6	135.4	1.8	30.0
Dibromochloromethane		107.2	74.6	127.2	4.2	30.0
1,2-Dibromoethane		106.5	70.3	133.7	2.9	30.0
Chlorobenzene		105.1	79.2	122.7	4.2	30.0

Organics - Volatiles, Prep Batch ID: VF240520W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: 240520A3.LCSDW20A, Parent Sample ID: 240520A3.LCSW20A

Run in Batch: 240520A3, Run Date: 05/20/2024 13:55, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,1,1,2-Tetrachloroethane		106.8	80.3	128.2	4.1	30.0
Ethylbenzene		104.3	79.5	129.1	4.1	30.0
p,m-Xylene		105.1	79.4	132.2	4.5	30.0
o-Xylene		106.0	80.2	131.0	3.2	30.0
Styrene		108.8	69.5	126.7	3.2	30.0
Isopropylbenzene		105.4	74.4	121.5	4.0	30.0
Bromoform		106.9	69.4	128.0	4.1	30.0
1,1,2,2-Tetrachloroethane		105.8	79.8	126.3	2.2	30.0
1,2,3-Trichloropropane		106.8	78.3	138.8	0.2	30.0
n-Propylbenzene		106.0	82.0	130.7	5.2	30.0
Bromobenzene		106.0	78.7	124.6	3.0	30.0
1,3,5-Trimethylbenzene		105.2	81.3	128.9	4.2	30.0
tert-Butylbenzene		104.8	80.7	128.9	4.2	30.0
1,2,4-Trimethylbenzene		106.0	81.4	130.8	4.3	30.0
sec-Butylbenzene		107.9	77.4	129.8	4.0	30.0
p-Isopropyltoluene		107.2	79.8	137.5	4.5	30.0
1,3-Dichlorobenzene		107.7	77.0	131.3	2.8	30.0
1,4-Dichlorobenzene		106.5	20.7	137.7	3.5	30.0
1,2-Dichlorobenzene		108.4	10.0	166.2	2.1	30.0
1,2,3-Trimethylbenzene		107.7	76.3	124.2	2.0	30.0
n-Butylbenzene		107.8	80.0	133.3	3.8	30.0
Hexachloroethane		112.8	23.8	138.1	4.4	30.0
1,2-Dibromo-3-chloropropane		109.0	21.2	189.4	3.0	30.0
1,2,4-Trichlorobenzene		114.0	27.4	143.4	1.9	30.0
1,2,3-Trichlorobenzene		113.2	75.4	131.4	3.2	30.0
Naphthalene		116.5	32.9	135.8	0.0	30.0
2-Methylnaphthalene		117.1	25.5	165.5	0.4	30.0

Matrix Spike (MS)

Lab Sample ID: 240520A3.6213724M, Parent Sample ID: S62137.23

Run in Batch: 240520A3, Run Date: 05/20/2024 22:30, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Diethyl ether		107.9	67.4	121.2
Acetone		106.4	29.9	161.5
Methyl iodide		115.0	68.8	116.4
Carbon disulfide		107.5	63.8	137.4
tert-Methyl butyl ether (MTBE)		112.1	73.2	122.4
Acrylonitrile		107.0	69.9	128.9
2-Butanone (MEK)		89.4	44.0	134.4
Dichlorodifluoromethane		116.4	10.0	222.8
Chloromethane		115.9	23.8	166.5
Vinyl chloride		113.0	43.5	149.1
Bromomethane		113.0	56.8	151.3
Chloroethane		108.4	53.4	149.4
Trichlorofluoromethane		115.9	59.7	151.8
1,1-Dichloroethene		112.9	69.6	139.4

Organics - Volatiles, Prep Batch ID: VF240520W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Matrix Spike (MS) (continued)

Lab Sample ID: 240520A3.6213724M, Parent Sample ID: S62137.23

Run in Batch: 240520A3, Run Date: 05/20/2024 22:30, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Methylene chloride		110.1	73.3	121.1
trans-1,2-Dichloroethene		112.1	73.6	129.3
1,1-Dichloroethane		113.4	71.5	126.2
cis-1,2-Dichloroethene		111.2	76.6	122.1
Tetrahydrofuran		94.0	59.0	117.9
Chloroform		109.8	78.4	124.0
Bromochloromethane		111.6	78.2	120.8
1,1,1-Trichloroethane		115.6	79.4	130.9
4-Methyl-2-pentanone (MIBK)		93.5	71.6	125.2
2-Hexanone		90.2	55.4	136.9
Carbon tetrachloride		106.9	72.6	133.0
Benzene		102.6	79.9	124.9
1,2-Dichloroethane		102.3	76.0	126.3
Trichloroethene		104.8	79.7	124.2
1,2-Dichloropropane		101.4	78.6	126.4
Bromodichloromethane		105.0	80.4	128.2
Dibromomethane		104.0	76.9	122.1
cis-1,3-Dichloropropene		101.1	79.8	129.9
Toluene		104.9	79.8	124.5
trans-1,3-Dichloropropene		101.5	74.0	131.3
1,1,2-Trichloroethane		103.1	78.7	123.1
Tetrachloroethene		106.5	74.5	124.5
trans-1,4-Dichloro-2-butene	*	49.9	68.6	135.4
Dibromochloromethane		105.0	74.6	127.2
1,2-Dibromoethane		101.7	70.3	133.7
Chlorobenzene		104.0	79.2	122.7
1,1,1,2-Tetrachloroethane		103.7	80.3	128.2
Ethylbenzene		104.4	79.5	129.1
p,m-Xylene		105.4	79.4	132.2
o-Xylene		105.2	80.2	131.0
Styrene		101.3	69.5	126.7
Isopropylbenzene		105.6	74.4	121.5
Bromoform		102.7	69.4	128.0
1,1,2,2-Tetrachloroethane		101.2	79.8	126.3
1,2,3-Trichloropropane		103.4	78.3	138.8
n-Propylbenzene		105.3	82.0	130.7
Bromobenzene		105.0	78.7	124.6
1,3,5-Trimethylbenzene		103.7	81.3	128.9
tert-Butylbenzene		104.4	80.7	128.9
1,2,4-Trimethylbenzene		104.6	81.4	130.8
sec-Butylbenzene		105.7	77.4	129.8
p-Isopropyltoluene		106.7	79.8	137.5
1,3-Dichlorobenzene		105.7	77.0	131.3
1,4-Dichlorobenzene		105.0	20.7	137.7
1,2-Dichlorobenzene		104.9	10.0	166.2
1,2,3-Trimethylbenzene		104.5	76.3	124.2

Organics - Volatiles, Prep Batch ID: VF240520W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Matrix Spike (MS) (continued)

Lab Sample ID: 240520A3.6213724M, Parent Sample ID: S62137.23

Run in Batch: 240520A3, Run Date: 05/20/2024 22:30, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
n-Butylbenzene		103.5	80.0	133.3
Hexachloroethane		107.4	23.8	138.1
1,2-Dibromo-3-chloropropane		100.1	21.2	189.4
1,2,4-Trichlorobenzene		107.0	27.4	143.4
1,2,3-Trichlorobenzene		107.9	75.4	131.4
Naphthalene		107.0	32.9	135.8
2-Methylnaphthalene		95.5	25.5	165.5

Matrix Spike Duplicate (MSD)

Lab Sample ID: 240520A3.6213725N, Parent Sample ID: 240520A3.6213724M

Run in Batch: 240520A3, Run Date: 05/20/2024 22:54, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Diethyl ether		109.6	67.4	121.2	1.5	30.0
Acetone		102.9	29.9	161.5	3.3	30.0
Methyl iodide		113.2	68.8	116.4	1.5	30.0
Carbon disulfide		104.4	63.8	137.4	3.0	30.0
tert-Methyl butyl ether (MTBE)		114.2	73.2	122.4	1.8	30.0
Acrylonitrile		109.1	69.9	128.9	2.0	30.0
2-Butanone (MEK)		94.4	44.0	134.4	5.4	30.0
Dichlorodifluoromethane		110.7	10.0	222.8	5.0	30.0
Chloromethane		111.9	23.8	166.5	3.6	30.0
Vinyl chloride		107.4	43.5	149.1	5.1	30.0
Bromomethane		110.2	56.8	151.3	2.5	30.0
Chloroethane		103.7	53.4	149.4	4.4	30.0
Trichlorofluoromethane		113.0	59.7	151.8	2.5	30.0
1,1-Dichloroethene		109.5	69.6	139.4	3.1	30.0
Methylene chloride		110.4	73.3	121.1	0.2	30.0
trans-1,2-Dichloroethene		107.0	73.6	129.3	4.7	30.0
1,1-Dichloroethane		110.1	71.5	126.2	2.9	30.0
cis-1,2-Dichloroethene		109.5	76.6	122.1	1.6	30.0
Tetrahydrofuran		100.8	59.0	117.9	6.9	30.0
Chloroform		108.0	78.4	124.0	1.6	30.0
Bromochloromethane		113.1	78.2	120.8	1.3	30.0
1,1,1-Trichloroethane		112.7	79.4	130.9	2.5	30.0
4-Methyl-2-pentanone (MIBK)		94.8	71.6	125.2	1.4	30.0
2-Hexanone		94.1	55.4	136.9	4.2	30.0
Carbon tetrachloride		104.4	72.6	133.0	2.4	30.0
Benzene		100.8	79.9	124.9	1.8	30.0
1,2-Dichloroethane		104.0	76.0	126.3	1.6	30.0
Trichloroethene		101.6	79.7	124.2	3.0	30.0
1,2-Dichloropropane		102.1	78.6	126.4	0.7	30.0
Bromodichloromethane		107.1	80.4	128.2	2.0	30.0
Dibromomethane		105.4	76.9	122.1	1.3	30.0
cis-1,3-Dichloropropene		103.2	79.8	129.9	2.1	30.0
Toluene		104.2	79.8	124.5	0.6	30.0
trans-1,3-Dichloropropene		102.5	74.0	131.3	1.0	30.0

Organics - Volatiles, Prep Batch ID: VF240520W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Matrix Spike Duplicate (MSD) (continued)

Lab Sample ID: 240520A3.6213725N, Parent Sample ID: 240520A3.6213724M

Run in Batch: 240520A3, Run Date: 05/20/2024 22:54, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,1,2-Trichloroethane		104.6	78.7	123.1	1.5	30.0
Tetrachloroethene		103.6	74.5	124.5	2.8	30.0
trans-1,4-Dichloro-2-butene	*	57.4	68.6	135.4	13.9	30.0
Dibromochloromethane		104.2	74.6	127.2	0.7	30.0
1,2-Dibromoethane		101.6	70.3	133.7	0.2	30.0
Chlorobenzene		101.2	79.2	122.7	2.7	30.0
1,1,1,2-Tetrachloroethane		104.6	80.3	128.2	0.9	30.0
Ethylbenzene		100.6	79.5	129.1	3.7	30.0
p,m-Xylene		103.1	79.4	132.2	2.2	30.0
o-Xylene		102.3	80.2	131.0	2.8	30.0
Styrene		100.2	69.5	126.7	1.0	30.0
Isopropylbenzene		101.6	74.4	121.5	3.9	30.0
Bromoform		102.5	69.4	128.0	0.2	30.0
1,1,2,2-Tetrachloroethane		100.3	79.8	126.3	0.8	30.0
1,2,3-Trichloropropane		101.3	78.3	138.8	2.0	30.0
n-Propylbenzene		101.1	82.0	130.7	4.1	30.0
Bromobenzene		102.7	78.7	124.6	2.2	30.0
1,3,5-Trimethylbenzene		101.2	81.3	128.9	2.5	30.0
tert-Butylbenzene		101.7	80.7	128.9	2.7	30.0
1,2,4-Trimethylbenzene		101.1	81.4	130.8	3.4	30.0
sec-Butylbenzene		101.4	77.4	129.8	4.1	30.0
p-Isopropyltoluene		101.6	79.8	137.5	4.9	30.0
1,3-Dichlorobenzene		103.0	77.0	131.3	2.6	30.0
1,4-Dichlorobenzene		102.4	20.7	137.7	2.5	30.0
1,2-Dichlorobenzene		103.5	10.0	166.2	1.4	30.0
1,2,3-Trimethylbenzene		101.0	76.3	124.2	3.4	30.0
n-Butylbenzene		99.1	80.0	133.3	4.3	30.0
Hexachloroethane		105.0	23.8	138.1	2.3	30.0
1,2-Dibromo-3-chloropropane		100.5	21.2	189.4	0.4	30.0
1,2,4-Trichlorobenzene		106.6	27.4	143.4	0.3	30.0
1,2,3-Trichlorobenzene		109.6	75.4	131.4	1.5	30.0
Naphthalene		108.0	32.9	135.8	0.9	30.0
2-Methylnaphthalene		104.1	25.5	165.5	8.6	30.0

Organics - Volatiles, Prep Batch ID: VS240520W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: K240520.BLK20A

Run in Batch: K240520, Run Date: 05/20/2024 15:11, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
1,4-Dioxane		ND	0.02	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: K240520.LCS20A

Run in Batch: K240520, Run Date: 05/20/2024 13:34, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		102.6	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: K240520.LCSD20A, Parent Sample ID: K240520.LCS20A

Run in Batch: K240520, Run Date: 05/20/2024 13:58, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		104.0	70.0	130.0	1.4	30.0

Matrix Spike (MS)

Lab Sample ID: K240520.6213724M, Parent Sample ID: S62137.23

Run in Batch: K240520, Run Date: 05/20/2024 22:57, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane	*	136.5	70.0	130.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: K240520.6213725N, Parent Sample ID: K240520.6213724M

Run in Batch: K240520, Run Date: 05/20/2024 23:21, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		108.5	70.0	130.0	15.0	30.0

Organics - Volatiles, Prep Batch ID: VS240520W3

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: K240520B.BLK20B

Run in Batch: K240520B, Run Date: 05/21/2024 02:36, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
1,4-Dioxane		ND	0.02	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: K240520B.LCS20B

Run in Batch: K240520B, Run Date: 05/21/2024 00:58, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		100.6	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: K240520B.LCSD20B, Parent Sample ID: K240520B.LCS20B

Run in Batch: K240520B, Run Date: 05/21/2024 01:23, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		108.9	70.0	130.0	7.9	30.0

Merit Laboratories Login Checklist

Lab Set ID: S62137
Client: ARCADIS_NOVI (ARCADIS U.S., Inc.)
Project: 30214036.0470B / RACER Lansing GWS
Submitted: 05/16/2024 12:10 Login User: MMC

Attention: Kaitlyn Hunt
Address: Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 6.0
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[ ] Yes	[X] No	[ ] N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	[X] Yes	[ ] No	[ ] N/A	Do sample have correct chemical preservation	
11.	[ ] Yes	[ ] No	[X] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[ ] Yes	[X] No	[ ] N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[ ] Yes	[X] No	[ ] N/A	Samples require laboratory filtration	
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[X] No	[ ] N/A	Do water VOC or TOX bottles contain headspace	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Plant 2

Merit Laboratories, Inc.
2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 3

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Tiffany Linder, Kaitlyn Hunt
COMPANY: Arcadis
ADDRESS: 28550 Cabot Drive, STE 500
CITY: Novi STATE: MI ZIP CODE: 48377
PHONE NO.: 947-777-5215 FAX NO.: P.O. NO.: US3460016187
E-MAIL ADDRESS: kaitlyn.hunt@arcadis.com QUOTE NO.:

INVOICE TO

CONTACT NAME: ☒ SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: E-MAIL ADDRESS: tiffany.linder@arcadis.com

PROJECT NO./NAME: 30214036.0470B / RACER Lansing GWS
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Austin Westhuis

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☒ EDD ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐ OHIO VAP ☐ Drinking Water ☐ DoD ☐ NPDES
Project Locations: ☐ Detroit ☐ New York ☐ Other
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	1,4-Dioxane - 8260 SIMS	VOC - 8260 SIMS	SVOC-8270 SIMS
62137.01	5/14/24	1125	MW-19-121_051424	GW	3		3						X		
.02	5/14/24	1305	MW-19-122_051424	GW	3		3						X		
.03	5/14/24	1545	MW-19-123_051424	GW	3		3						X		
.04	5/14/24	1650	MW-19-124_051424	GW	3		3						X		
.05	5/14/24	1645	MW-16-75_051424	GW	3		3						X		
.06	5/15/24	1035	MW-14-61_051524	GW	5	2	3						X	X	X
.07	5/15/24	1215	MW-15-72_051524	GW	5	2	3						X	X	X
.08	5/15/24	1340	MW-16-81_051524	GW	3		3						X	X	
.09	5/15/24	—	DUP-02_051524	GW	5	2	3						X	X	X
.10	5/16/24	0925	TW-15-12_051624	GW	3		3						X		
.11	5/14/24	—	Trip Blank	GW	1		1							X	

RELINQUISHED BY: SIGNATURE/ORGANIZATION	Arcadis (Sampler)	DATE 5/16/24	TIME 1210
RECEIVED BY: SIGNATURE/ORGANIZATION	Merit Drop Box	DATE 5/16/24	TIME 1210
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

RELINQUISHED BY: SIGNATURE/ORGANIZATION	Merit Drop Box	DATE 5/16/24	TIME 1210
RECEIVED BY: SIGNATURE/ORGANIZATION	M Olilcoob	DATE 5/16/24	TIME 1210
SEAL NO.	SEAL INTACT YES☐ NO☐	INITIALS	NOTES: TEMP. ON ARRIVAL 6.0
SEAL NO.	SEAL INTACT YES☐ NO☐	INITIALS	

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

Plant 2

Merit Laboratories, Inc.
2680 East Lansing Dr., East Lansing, MI 48823
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www.meritlabs.com

C.O.C. PAGE # 2 OF 3

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Tiffany Linder, Kaitlyn Hunt
COMPANY: Arcadis
ADDRESS: 28550 Cabot Drive, STE 500
CITY: Novi | STATE: MI | ZIP CODE: 48377
PHONE NO.: 947-777-5215 | FAX NO.: | P.O. NO.: US3460016187
E-MAIL ADDRESS: kaitlyn.hunt@arcadis.com | QUOTE NO.:

INVOICE TO

CONTACT NAME: ☒ SAME
COMPANY:
ADDRESS:
CITY: | STATE: | ZIP CODE:
PHONE NO.: | E-MAIL ADDRESS: tiffany.linder@arcadis.com

PROJECT NO./NAME: 30214036.0470B / RACER Lansing GWS
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Austin Westhuis

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☒ EDD ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐ OHIO VAP ☐ Drinking Water ☐ DoD ☐ NPDES
Project Locations: ☐ Detroit ☐ New York ☐ Other
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	1,4-Dioxane - 8260 SIMS	VOC - 8260 SIMS	SVOC-8270 SIMS
62137.12	5/14/24	1130	MW-16-74_051424	GW	3		3						X		
.13	5/14/24	1315	MW-16-77_051424	GW	3		3						X		
.14	5/14/24	1500	MW-16-78_051424	GW	3		3						X		
.15	5/14/24	1645	MW-19-120_051424	GW	3		3						X	X	
.16	5/15/24	1015	MW-21-142_051524	GW	3		3						X		
.17	5/15/24	1210	PW-14-01_051524	GW	3		3						X		
.18	5/15/24	1535	TW-14-02_051524	GW	3		3						X	X	
.19	5/15/24	1355	PW-14-02_051524	GW	3		3						X	X	

RELINQUISHED BY: SIGNATURE/ORGANIZATION: Arcadis (Sampler) — DATE: 5/16/24 — TIME: 1210
RECEIVED BY: SIGNATURE/ORGANIZATION: Merit Drop Box — DATE: 5/16/24 — TIME: 1210

RELINQUISHED BY: SIGNATURE/ORGANIZATION: Merit Drop Box — DATE: 5/16/24 — TIME: 1210
RECEIVED BY: SIGNATURE/ORGANIZATION: M Chilcott — DATE: 5/16/24 — TIME: 1210

RELINQUISHED BY: SIGNATURE/ORGANIZATION: — DATE — TIME
RECEIVED BY: SIGNATURE/ORGANIZATION: — DATE — TIME

SEAL NO. | SEAL INTACT YES ☐ NO ☐ | INITIALS
SEAL NO. | SEAL INTACT YES ☐ NO ☐ | INITIALS

NOTES: TEMP. ON ARRIVAL 6.0

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

Plant 2

Merit Laboratories, Inc.

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C.O.C. PAGE # 3 OF 3

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Tiffany Linder, Kaitlyn Hunt
COMPANY: Arcadis
ADDRESS: 28550 Cabot Drive, STE 500
CITY: Novi STATE: MI ZIP CODE: 48377
PHONE NO.: 947-777-5215 FAX NO.:
P.O. NO.: US3460016187
E-MAIL ADDRESS: kaitlyn.hunt@arcadis.com QUOTE NO.:

INVOICE TO

CONTACT NAME: ☒ SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: E-MAIL ADDRESS: tiffany.linder@arcadis.com

PROJECT NO./NAME: 30214036.0470B / RACER Lansing GWS
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Billy J. Cabera

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☒ EDD ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐ OHIO VAP ☐ Drinking Water ☐ DoD ☐ NPDES
Project Locations: ☐ Detroit ☐ New York ☐ Other
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	1,4-Dioxane - 8260 SIMS	VOC - 8260 SIMS	SVOC-8270 SIMS	Special Instructions
62137.20	5/14/24	1025	MW-13-43-051424	GW	3		3						X			
.21	5/14/24	1145	MW-13-45_051424	GW	3		3						X			
.22	5/14/24	1250	MW-16-82_051424	GW	3		3						X			
23/24/.25	5/14/24	1410	MW-16-84_051424	GW	9		9						X	X		MSMSD
.26	5/14/24	1525	MW-17-86_051424	GW	3		3						X	X		
.27	5/15/24	0935	MW-20-127_051524	GW	3		3						X			
.28	5/15/24	1100	MW-20-128_051524	GW	3		3						X			
.29	5/15/24	1215	MW-19-117_051524	GW	3		3						X			
.30	5/15/24	1340	MW-19-116_051524	GW	3		3						X			
.31	5/15/24	1430	MW-19-115_051524	GW	3		3						X			
.32	5/15/24	1555	MW-20-129_051524	GW	3		3						X			
.33	5/15/24	—	Dup-03_051524	GW	3		3						X			

RELINQUISHED BY: SIGNATURE/ORGANIZATION	Arcadis (Sampler)	DATE 5/16/24	TIME 1210
RECEIVED BY: SIGNATURE/ORGANIZATION	Merit Drop Box	DATE 5/16/24	TIME 1210
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

RELINQUISHED BY: SIGNATURE/ORGANIZATION	Merit Drop Box	DATE 5/16/24	TIME 1210
RECEIVED BY: SIGNATURE/ORGANIZATION	M Alicata	DATE 5/16/24	TIME 1210
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	NOTES: TEMP. ON ARRIVAL 6.0
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

Analytical Laboratory Report

Report ID: S62233.01(01)+QC01
Generated on 05/28/2024

Report to

Attention: Kaitlyn Hunt
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 C:947-777-5215 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Addtional Contacts: Marina Samp, Tiffany Linder

Report produced by

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John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S62233.01-S62233.18
Project: 30214036.0470A / RACER Lansing GWS
Collected Date(s): 05/16/2024 - 05/17/2024
Submitted Date/Time: 05/17/2024 13:15
Sampled by: Schulte / Redner / Cobern
P.O. #: US3460016166

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Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Starred (*) analytes are not NY NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.
Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.
All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.
For a specific list of accredited analytes, please feel free to contact the laboratory or visit https://www.meritlabs.com/certifications.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
o	Associated EIS outside of control limits
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
q	Qualifier ion ratio outside of control limits
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
N/A	Not Applicable
SW3510C	SW 846 Method 3510C Revision 3 December 1996
SW5030C/8260C	SW 846 Method 8260C Revision 3 August 2006 / 5030C Revision 3 May 2003
SW8260B - SIM	SW 846 Method 8260B Revision 2 December 1996 SIMs
SW8270D	SW 846 Method 8270D Revision 4 February 2007

Sample Summary (18 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S62233.01	MW-12-09_051624	Groundwater	05/16/24 10:55
S62233.02	MW-12-18_051624	Groundwater	05/16/24 12:40
S62233.03	MW-14-54_051624	Groundwater	05/16/24 13:25
S62233.04	MW-14-55_051624	Groundwater	05/16/24 15:45
S62233.05	MW-14-59_051724	Groundwater	05/17/24 09:45
S62233.06	MW-14-60_051724	Groundwater	05/17/24 11:40
S62233.07	DUP-01_051624	Groundwater	05/16/24 00:01
S62233.08	P2-MW-04_051624	Groundwater	05/16/24 14:00
S62233.09	P2-MW-04_051624 MS	Groundwater	05/16/24 14:00
S62233.10	P2-MW-04_051624 MSD	Groundwater	05/16/24 14:00
S62233.11	MW-21-139_051624	Groundwater	05/16/24 16:20
S62233.12	MW-14-57_051724	Groundwater	05/17/24 09:55
S62233.13	MW-01(2)_051724	Groundwater	05/17/24 11:40
S62233.14	MW-21-140_051624	Groundwater	05/16/24 11:45
S62233.15	MW-16-85_051624	Groundwater	05/16/24 12:50
S62233.16	MW-16-76_051624	Groundwater	05/16/24 14:20
S62233.17	MW-14-63_051624	Groundwater	05/16/24 15:50
S62233.18	Trip Blank	Water	05/16/24 00:01

Analytical Laboratory Report

Lab Sample ID: S62233.01
Sample Tag: MW-12-09_051624
Collected Date/Time: 05/16/2024 10:55
Matrix: Groundwater
COC Reference: 1

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/21/24 11:20	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/21/24 10:23, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	Not detected	1		ug/L	1	123-91-1	

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/21/24 04:19, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	5	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	

Lab Sample ID: S62233.01 (continued)
Sample Tag: MW-12-09_051624

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/21/24 04:19, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Lab Sample ID: S62233.02
Sample Tag: MW-12-18_051624
Collected Date/Time: 05/16/2024 12:40
Matrix: Groundwater
COC Reference: 1

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/21/24 11:20	NDK	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/21/24 04:43, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	1	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	

Lab Sample ID: S62233.02 (continued)
Sample Tag: MW-12-18_051624

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/21/24 04:43, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Lab Sample ID: S62233.03
Sample Tag: MW-14-54_051624
Collected Date/Time: 05/16/2024 13:25
Matrix: Groundwater
COC Reference: 1

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/21/24 11:20	NDK	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/21/24 05:06, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	3		ug/L	1	75-34-3	X
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	10		ug/L	1	71-55-6	X
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	608	1		ug/L	1	71-43-2	E
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	172	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	

X-Elevated reporting limit due to matrix interference
E-Concentration exceeds calibration range

Lab Sample ID: S62233.03 (continued)
Sample Tag: MW-14-54_051624

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/21/24 05:06, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	684	1		ug/L	1	100-41-4	E
p,m-Xylene*	1,054	2		ug/L	1		E
o-Xylene	162	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	33	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	85	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	20	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	335	1		ug/L	1	95-63-6	E
sec-Butylbenzene	3	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	115	1		ug/L	1	526-73-8	
n-Butylbenzene	4	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	161	5		ug/L	1	91-20-3	
2-Methylnaphthalene	12	5		ug/L	1	91-57-6	

Volatile Organics - DEQ List (Replicate 01), Method: SW5030C/8260C, Run Date: 05/21/24 21:31, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	100		ug/L	10	60-29-7	Y
Acetone	Not detected	500		ug/L	10	67-64-1	Y
Methyl iodide	Not detected	10		ug/L	10	74-88-4	Y
Carbon disulfide	Not detected	50		ug/L	10	75-15-0	Y
tert-Methyl butyl ether (MTBE)	Not detected	50		ug/L	10	1634-04-4	Y
Acrylonitrile	Not detected	20		ug/L	10	107-13-1	Y
2-Butanone (MEK)	Not detected	250		ug/L	10	78-93-3	Y
Dichlorodifluoromethane	Not detected	50		ug/L	10	75-71-8	Y
Chloromethane	Not detected	50		ug/L	10	74-87-3	Y
Vinyl chloride	Not detected	10		ug/L	10	75-01-4	Y
Bromomethane	Not detected	50		ug/L	10	74-83-9	Y
Chloroethane	Not detected	50		ug/L	10	75-00-3	Y
Trichlorofluoromethane	Not detected	10		ug/L	10	75-69-4	Y

E-Concentration exceeds calibration range
Y-Elevated reporting limit due to high target concentration

Lab Sample ID: S62233.03 (continued)
Sample Tag: MW-14-54_051624

Volatile Organics - DEQ List (Replicate 01), Method: SW5030C/8260C, Run Date: 05/21/24 21:31, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,1-Dichloroethene	Not detected	10		ug/L	10	75-35-4	Y
Methylene chloride	Not detected	50		ug/L	10	75-09-2	Y
trans-1,2-Dichloroethene	Not detected	10		ug/L	10	156-60-5	Y
1,1-Dichloroethane	Not detected	10		ug/L	10	75-34-3	Y
cis-1,2-Dichloroethene	Not detected	10		ug/L	10	156-59-2	Y
Tetrahydrofuran*	Not detected	900		ug/L	10	109-99-9	Y
Chloroform	Not detected	10		ug/L	10	67-66-3	Y
Bromochloromethane	Not detected	10		ug/L	10	74-97-5	Y
1,1,1-Trichloroethane	Not detected	10		ug/L	10	71-55-6	Y
4-Methyl-2-pentanone (MIBK)	Not detected	500		ug/L	10	108-10-1	Y
2-Hexanone	Not detected	500		ug/L	10	591-78-6	Y
Carbon tetrachloride	Not detected	10		ug/L	10	56-23-5	Y
Benzene	460	10		ug/L	10	71-43-2	Y
1,2-Dichloroethane	Not detected	10		ug/L	10	107-06-2	Y
Trichloroethene	Not detected	10		ug/L	10	79-01-6	Y
1,2-Dichloropropane	Not detected	10		ug/L	10	78-87-5	Y
Bromodichloromethane	Not detected	10		ug/L	10	75-27-4	Y
Dibromomethane	Not detected	50		ug/L	10	74-95-3	Y
cis-1,3-Dichloropropene	Not detected	10		ug/L	10	10061-01-5	Y
Toluene	130	10		ug/L	10	108-88-3	Y
trans-1,3-Dichloropropene	Not detected	10		ug/L	10	10061-02-6	Y
1,1,2-Trichloroethane	Not detected	10		ug/L	10	79-00-5	Y
Tetrachloroethene	Not detected	10		ug/L	10	127-18-4	Y
trans-1,4-Dichloro-2-butene	Not detected	10		ug/L	10	110-57-6	Y
Dibromochloromethane	Not detected	50		ug/L	10	124-48-1	Y
1,2-Dibromoethane	Not detected	10		ug/L	10	106-93-4	Y
Chlorobenzene	Not detected	10		ug/L	10	108-90-7	Y
1,1,1,2-Tetrachloroethane	Not detected	10		ug/L	10	630-20-6	Y
Ethylbenzene	690	10		ug/L	10	100-41-4	Y
p,m-Xylene*	1,080	20		ug/L	10		Y
o-Xylene	130	10		ug/L	10	95-47-6	Y
Styrene	Not detected	10		ug/L	10	100-42-5	Y
Isopropylbenzene	Not detected	50		ug/L	10	98-82-8	Y
Bromoform	Not detected	10		ug/L	10	75-25-2	Y
1,1,2,2-Tetrachloroethane	Not detected	10		ug/L	10	79-34-5	Y
1,2,3-Trichloropropane	Not detected	10		ug/L	10	96-18-4	Y
n-Propylbenzene	70	10		ug/L	10	103-65-1	Y
Bromobenzene	Not detected	10		ug/L	10	108-86-1	Y
1,3,5-Trimethylbenzene	20	10		ug/L	10	108-67-8	Y
tert-Butylbenzene	Not detected	10		ug/L	10	98-06-6	Y
1,2,4-Trimethylbenzene	310	10		ug/L	10	95-63-6	Y
sec-Butylbenzene	Not detected	10		ug/L	10	135-98-8	Y
p-Isopropyltoluene	Not detected	50		ug/L	10	99-87-6	Y
1,3-Dichlorobenzene	Not detected	10		ug/L	10	541-73-1	Y
1,4-Dichlorobenzene	Not detected	10		ug/L	10	106-46-7	Y
1,2-Dichlorobenzene	Not detected	10		ug/L	10	95-50-1	Y
1,2,3-Trimethylbenzene	100	10		ug/L	10	526-73-8	Y
n-Butylbenzene	Not detected	10		ug/L	10	104-51-8	Y
Hexachloroethane	Not detected	50		ug/L	10	67-72-1	Y

Y-Elevated reporting limit due to high target concentration

Lab Sample ID: S62233.03 (continued)
Sample Tag: MW-14-54_051624

Volatile Organics - DEQ List (Replicate 01), Method: SW5030C/8260C, Run Date: 05/21/24 21:31, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,2-Dibromo-3-chloropropane	Not detected	50		ug/L	10	96-12-8	Y
1,2,4-Trichlorobenzene	Not detected	50		ug/L	10	120-82-1	Y
1,2,3-Trichlorobenzene	Not detected	50		ug/L	10	87-61-6	Y
Naphthalene	130	50		ug/L	10	91-20-3	Y
2-Methylnaphthalene	Not detected	50		ug/L	10	91-57-6	Y

Y-Elevated reporting limit due to high target concentration

Lab Sample ID: S62233.04
Sample Tag: MW-14-55_051624
Collected Date/Time: 05/16/2024 15:45
Matrix: Groundwater
COC Reference: 1

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/21/24 11:20	NDK	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/21/24 05:29, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	2	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	

Lab Sample ID: S62233.04 (continued)
Sample Tag: MW-14-55_051624

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/21/24 05:29, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Lab Sample ID: S62233.05
Sample Tag: MW-14-59_051724
Collected Date/Time: 05/17/2024 09:45
Matrix: Groundwater
COC Reference: 1

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.8	IR
2	1L Amber	None	Yes	5.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/21/24 11:20	NDK	
BNA Extraction	Completed	SW3510C	05/23/24 13:00	JWR	

Organics - Semi-Volatiles

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 05/23/24 18:41, Analyst: PL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acenaphthene	Not detected	5		ug/L	2	83-32-9	
Acenaphthylene	Not detected	5		ug/L	2	208-96-8	
Anthracene	Not detected	5		ug/L	2	120-12-7	
Benzo(a)anthracene	Not detected	1		ug/L	2	56-55-3	
Benzo(b)fluoranthene	Not detected	1		ug/L	2	205-99-2	
Benzo(k)fluoranthene	Not detected	1		ug/L	2	207-08-9	
Benzo(ghi)perylene	Not detected	1		ug/L	2	191-24-2	
Benzo(a)pyrene	Not detected	1		ug/L	2	50-32-8	
bis(2-Chloroethoxy)methane	Not detected	5		ug/L	2	111-91-1	
bis(2-Chloroethyl)ether	Not detected	5		ug/L	2	111-44-4	
bis(2-Chloroisopropyl)ether*	Not detected	5		ug/L	2	108-60-1	
bis(2-Ethylhexyl)phthalate	Not detected	5		ug/L	2	117-81-7	
4-Bromophenyl phenyl ether	Not detected	5		ug/L	2	101-55-3	
Butyl benzyl phthalate	Not detected	5		ug/L	2	85-68-7	
4-Chloroaniline	Not detected	10		ug/L	2	106-47-8	
2-Chloronaphthalene	Not detected	5		ug/L	2	91-58-7	
4-Chloro-3-methylphenol	Not detected	5		ug/L	2	59-50-7	
2-Chlorophenol	Not detected	10		ug/L	2	95-57-8	
4-Chlorophenyl phenyl ether	Not detected	5		ug/L	2	7005-72-3	
Chrysene	Not detected	1		ug/L	2	218-01-9	
3-, 4-Methylphenol (p,m-Cresol)	Not detected	20		ug/L	2	3/4-CRESOL	
2-Methylphenol (o-Cresol)	Not detected	10		ug/L	2	95-48-7	
Dibenzo(ah)anthracene	Not detected	2		ug/L	2	53-70-3	
Dibenzofuran	Not detected	4		ug/L	2	132-64-9	
di-n-Butyl phthalate	Not detected	5		ug/L	2	84-74-2	
1,2-Dichlorobenzene	Not detected	1		ug/L	2	95-50-1	
1,3-Dichlorobenzene	Not detected	1		ug/L	2	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	2	106-46-7	
3,3'-Dichlorobenzidine	Not detected	5		ug/L	2	91-94-1	
2,4-Dichlorophenol	Not detected	10		ug/L	2	120-83-2	
Diethyl phthalate	Not detected	5		ug/L	2	84-66-2	
2,4-Dimethylphenol	Not detected	5		ug/L	2	105-67-9	
Dimethyl phthalate	Not detected	5		ug/L	2	131-11-3	
4,6-Dinitro-2-methylphenol	Not detected	20		ug/L	2	534-52-1	
2,4-Dinitrophenol	Not detected	25		ug/L	2	51-28-5	

Lab Sample ID: S62233.05 (continued)
Sample Tag: MW-14-59_051724

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 05/23/24 18:41, Analyst: PL (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
2,4-Dinitrotoluene	Not detected	5		ug/L	2	121-14-2	
2,6-Dinitrotoluene	Not detected	5		ug/L	2	606-20-2	
1,2-Diphenylhydrazine*	Not detected	5		ug/L	2	122-66-7	
di-n-Octyl phthalate	Not detected	5		ug/L	2	117-84-0	
Fluoranthene	Not detected	1		ug/L	2	206-44-0	
Fluorene	Not detected	5		ug/L	2	86-73-7	
Hexachlorobenzene	Not detected	5		ug/L	2	118-74-1	
Hexachlorobutadiene	Not detected	10		ug/L	2	87-68-3	
Hexachlorocyclopentadiene*	Not detected	5		ug/L	2	77-47-4	
Hexachloroethane	Not detected	5		ug/L	2	67-72-1	
Indeno(1,2,3-cd)pyrene	Not detected	2		ug/L	2	193-39-5	
Isophorone	Not detected	5		ug/L	2	78-59-1	
2-Methylnaphthalene	Not detected	5		ug/L	2	91-57-6	
Naphthalene	Not detected	5		ug/L	2	91-20-3	
2-Nitroaniline	Not detected	25		ug/L	2	88-74-4	
3-Nitroaniline	Not detected	25		ug/L	2	99-09-2	
4-Nitroaniline	Not detected	25		ug/L	2	100-01-6	
Nitrobenzene	Not detected	5		ug/L	2	98-95-3	
2-Nitrophenol	Not detected	5		ug/L	2	88-75-5	
4-Nitrophenol	Not detected	25		ug/L	2	100-02-7	
N-Nitrosodiphenylamine	Not detected	5		ug/L	2	86-30-6	
N-Nitrosodi-n-propylamine	Not detected	5		ug/L	2	621-64-7	
Pentachlorophenol	Not detected	5		ug/L	2	87-86-5	
Phenanthrene	Not detected	2		ug/L	2	85-01-8	
Phenol	Not detected	5		ug/L	2	108-95-2	
Pyrene	Not detected	5		ug/L	2	129-00-0	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	2	120-82-1	
2,4,5-Trichlorophenol	Not detected	5		ug/L	2	95-95-4	
2,4,6-Trichlorophenol	Not detected	4		ug/L	2	88-06-2	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/21/24 10:47, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	8	1		ug/L	1	123-91-1	

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/21/24 05:52, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	

Lab Sample ID: S62233.05 (continued)
Sample Tag: MW-14-59_051724

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/21/24 05:52, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,1-Dichloroethene	16	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	2	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	

Lab Sample ID: S62233.05 (continued)
Sample Tag: MW-14-59_051724

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/21/24 05:52, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Lab Sample ID: S62233.06
Sample Tag: MW-14-60_051724
Collected Date/Time: 05/17/2024 11:40
Matrix: Groundwater
COC Reference: 1

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.8	IR
2	1L Amber	None	Yes	5.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/21/24 11:20	NDK	
BNA Extraction	Completed	SW3510C	05/23/24 13:00	JWR	

Organics - Semi-Volatiles

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 05/23/24 19:12, Analyst: PL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acenaphthene	Not detected	5		ug/L	2	83-32-9	
Acenaphthylene	Not detected	5		ug/L	2	208-96-8	
Anthracene	Not detected	5		ug/L	2	120-12-7	
Benzo(a)anthracene	Not detected	1		ug/L	2	56-55-3	
Benzo(b)fluoranthene	Not detected	1		ug/L	2	205-99-2	
Benzo(k)fluoranthene	Not detected	1		ug/L	2	207-08-9	
Benzo(ghi)perylene	Not detected	1		ug/L	2	191-24-2	
Benzo(a)pyrene	Not detected	1		ug/L	2	50-32-8	
bis(2-Chloroethoxy)methane	Not detected	5		ug/L	2	111-91-1	
bis(2-Chloroethyl)ether	Not detected	5		ug/L	2	111-44-4	
bis(2-Chloroisopropyl)ether*	Not detected	5		ug/L	2	108-60-1	
bis(2-Ethylhexyl)phthalate	Not detected	5		ug/L	2	117-81-7	
4-Bromophenyl phenyl ether	Not detected	5		ug/L	2	101-55-3	
Butyl benzyl phthalate	Not detected	5		ug/L	2	85-68-7	
4-Chloroaniline	Not detected	10		ug/L	2	106-47-8	
2-Chloronaphthalene	Not detected	5		ug/L	2	91-58-7	
4-Chloro-3-methylphenol	Not detected	5		ug/L	2	59-50-7	
2-Chlorophenol	Not detected	10		ug/L	2	95-57-8	
4-Chlorophenyl phenyl ether	Not detected	5		ug/L	2	7005-72-3	
Chrysene	Not detected	1		ug/L	2	218-01-9	
3-, 4-Methylphenol (p,m-Cresol)	Not detected	20		ug/L	2	3/4-CRESOL	
2-Methylphenol (o-Cresol)	Not detected	10		ug/L	2	95-48-7	
Dibenzo(ah)anthracene	Not detected	2		ug/L	2	53-70-3	
Dibenzofuran	Not detected	4		ug/L	2	132-64-9	
di-n-Butyl phthalate	Not detected	5		ug/L	2	84-74-2	
1,2-Dichlorobenzene	Not detected	1		ug/L	2	95-50-1	
1,3-Dichlorobenzene	Not detected	1		ug/L	2	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	2	106-46-7	
3,3'-Dichlorobenzidine	Not detected	5		ug/L	2	91-94-1	
2,4-Dichlorophenol	Not detected	10		ug/L	2	120-83-2	
Diethyl phthalate	Not detected	5		ug/L	2	84-66-2	
2,4-Dimethylphenol	Not detected	5		ug/L	2	105-67-9	
Dimethyl phthalate	Not detected	5		ug/L	2	131-11-3	
4,6-Dinitro-2-methylphenol	Not detected	20		ug/L	2	534-52-1	
2,4-Dinitrophenol	Not detected	25		ug/L	2	51-28-5	

Lab Sample ID: S62233.06 (continued)
Sample Tag: MW-14-60_051724

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 05/23/24 19:12, Analyst: PL (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
2,4-Dinitrotoluene	Not detected	5		ug/L	2	121-14-2	
2,6-Dinitrotoluene	Not detected	5		ug/L	2	606-20-2	
1,2-Diphenylhydrazine*	Not detected	5		ug/L	2	122-66-7	
di-n-Octyl phthalate	Not detected	5		ug/L	2	117-84-0	
Fluoranthene	Not detected	1		ug/L	2	206-44-0	
Fluorene	Not detected	5		ug/L	2	86-73-7	
Hexachlorobenzene	Not detected	5		ug/L	2	118-74-1	
Hexachlorobutadiene	Not detected	10		ug/L	2	87-68-3	
Hexachlorocyclopentadiene*	Not detected	5		ug/L	2	77-47-4	
Hexachloroethane	Not detected	5		ug/L	2	67-72-1	
Indeno(1,2,3-cd)pyrene	Not detected	2		ug/L	2	193-39-5	
Isophorone	Not detected	5		ug/L	2	78-59-1	
2-Methylnaphthalene	Not detected	5		ug/L	2	91-57-6	
Naphthalene	Not detected	5		ug/L	2	91-20-3	
2-Nitroaniline	Not detected	25		ug/L	2	88-74-4	
3-Nitroaniline	Not detected	25		ug/L	2	99-09-2	
4-Nitroaniline	Not detected	25		ug/L	2	100-01-6	
Nitrobenzene	Not detected	5		ug/L	2	98-95-3	
2-Nitrophenol	Not detected	5		ug/L	2	88-75-5	
4-Nitrophenol	Not detected	25		ug/L	2	100-02-7	
N-Nitrosodiphenylamine	Not detected	5		ug/L	2	86-30-6	
N-Nitrosodi-n-propylamine	Not detected	5		ug/L	2	621-64-7	
Pentachlorophenol	Not detected	5		ug/L	2	87-86-5	
Phenanthrene	Not detected	2		ug/L	2	85-01-8	
Phenol	Not detected	5		ug/L	2	108-95-2	
Pyrene	Not detected	5		ug/L	2	129-00-0	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	2	120-82-1	
2,4,5-Trichlorophenol	Not detected	5		ug/L	2	95-95-4	
2,4,6-Trichlorophenol	Not detected	4		ug/L	2	88-06-2	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/21/24 16:06, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	10	1		ug/L	1	123-91-1	

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/21/24 06:16, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	2	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	

Lab Sample ID: S62233.06 (continued)
Sample Tag: MW-14-60_051724

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/21/24 06:16, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	

Lab Sample ID: S62233.06 (continued)

Sample Tag: MW-14-60_051724

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/21/24 06:16, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Lab Sample ID: S62233.07
Sample Tag: DUP-01_051624
Collected Date/Time: 05/16/2024 00:01
Matrix: Groundwater
COC Reference: 1

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/21/24 11:20	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/21/24 16:30, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	Not detected	1		ug/L	1	123-91-1	

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/21/24 06:39, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	5	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	

Lab Sample ID: S62233.07 (continued)
Sample Tag: DUP-01_051624

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/21/24 06:39, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Lab Sample ID: S62233.08
Sample Tag: P2-MW-04_051624
Collected Date/Time: 05/16/2024 14:00
Matrix: Groundwater
COC Reference: 2

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.8	IR
2	1L Amber	None	Yes	5.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/22/24 11:30	BDO	
BNA Extraction	Completed	SW3510C	05/23/24 13:00	JWR	

Organics - Semi-Volatiles

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 05/23/24 19:43, Analyst: PL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acenaphthene	Not detected	5		ug/L	2	83-32-9	
Acenaphthylene	Not detected	5		ug/L	2	208-96-8	
Anthracene	Not detected	5		ug/L	2	120-12-7	
Benzo(a)anthracene	Not detected	1		ug/L	2	56-55-3	
Benzo(b)fluoranthene	Not detected	1		ug/L	2	205-99-2	
Benzo(k)fluoranthene	Not detected	1		ug/L	2	207-08-9	
Benzo(ghi)perylene	Not detected	1		ug/L	2	191-24-2	
Benzo(a)pyrene	Not detected	1		ug/L	2	50-32-8	
bis(2-Chloroethoxy)methane	Not detected	5		ug/L	2	111-91-1	
bis(2-Chloroethyl)ether	Not detected	5		ug/L	2	111-44-4	
bis(2-Chloroisopropyl)ether*	Not detected	5		ug/L	2	108-60-1	
bis(2-Ethylhexyl)phthalate	Not detected	5		ug/L	2	117-81-7	
4-Bromophenyl phenyl ether	Not detected	5		ug/L	2	101-55-3	
Butyl benzyl phthalate	Not detected	5		ug/L	2	85-68-7	
4-Chloroaniline	Not detected	10		ug/L	2	106-47-8	
2-Chloronaphthalene	Not detected	5		ug/L	2	91-58-7	
4-Chloro-3-methylphenol	Not detected	5		ug/L	2	59-50-7	
2-Chlorophenol	Not detected	10		ug/L	2	95-57-8	
4-Chlorophenyl phenyl ether	Not detected	5		ug/L	2	7005-72-3	
Chrysene	Not detected	1		ug/L	2	218-01-9	
3-, 4-Methylphenol (p,m-Cresol)	Not detected	20		ug/L	2	3/4-CRESOL	
2-Methylphenol (o-Cresol)	Not detected	10		ug/L	2	95-48-7	
Dibenzo(ah)anthracene	Not detected	2		ug/L	2	53-70-3	
Dibenzofuran	Not detected	4		ug/L	2	132-64-9	
di-n-Butyl phthalate	Not detected	5		ug/L	2	84-74-2	
1,2-Dichlorobenzene	Not detected	1		ug/L	2	95-50-1	
1,3-Dichlorobenzene	Not detected	1		ug/L	2	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	2	106-46-7	
3,3'-Dichlorobenzidine	Not detected	5		ug/L	2	91-94-1	
2,4-Dichlorophenol	Not detected	10		ug/L	2	120-83-2	
Diethyl phthalate	Not detected	5		ug/L	2	84-66-2	
2,4-Dimethylphenol	Not detected	5		ug/L	2	105-67-9	
Dimethyl phthalate	Not detected	5		ug/L	2	131-11-3	
4,6-Dinitro-2-methylphenol	Not detected	20		ug/L	2	534-52-1	
2,4-Dinitrophenol	Not detected	25		ug/L	2	51-28-5	

Lab Sample ID: S62233.08 (continued)
Sample Tag: P2-MW-04_051624

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 05/23/24 19:43, Analyst: PL (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
2,4-Dinitrotoluene	Not detected	5		ug/L	2	121-14-2	
2,6-Dinitrotoluene	Not detected	5		ug/L	2	606-20-2	
1,2-Diphenylhydrazine*	Not detected	5		ug/L	2	122-66-7	
di-n-Octyl phthalate	Not detected	5		ug/L	2	117-84-0	
Fluoranthene	Not detected	1		ug/L	2	206-44-0	
Fluorene	Not detected	5		ug/L	2	86-73-7	
Hexachlorobenzene	Not detected	5		ug/L	2	118-74-1	
Hexachlorobutadiene	Not detected	10		ug/L	2	87-68-3	
Hexachlorocyclopentadiene*	Not detected	5		ug/L	2	77-47-4	
Hexachloroethane	Not detected	5		ug/L	2	67-72-1	
Indeno(1,2,3-cd)pyrene	Not detected	2		ug/L	2	193-39-5	
Isophorone	Not detected	5		ug/L	2	78-59-1	
2-Methylnaphthalene	Not detected	5		ug/L	2	91-57-6	
Naphthalene	Not detected	5		ug/L	2	91-20-3	
2-Nitroaniline	Not detected	25		ug/L	2	88-74-4	
3-Nitroaniline	Not detected	25		ug/L	2	99-09-2	
4-Nitroaniline	Not detected	25		ug/L	2	100-01-6	
Nitrobenzene	Not detected	5		ug/L	2	98-95-3	
2-Nitrophenol	Not detected	5		ug/L	2	88-75-5	
4-Nitrophenol	Not detected	25		ug/L	2	100-02-7	
N-Nitrosodiphenylamine	Not detected	5		ug/L	2	86-30-6	
N-Nitrosodi-n-propylamine	Not detected	5		ug/L	2	621-64-7	
Pentachlorophenol	Not detected	5		ug/L	2	87-86-5	
Phenanthrene	Not detected	2		ug/L	2	85-01-8	
Phenol	Not detected	5		ug/L	2	108-95-2	
Pyrene	Not detected	5		ug/L	2	129-00-0	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	2	120-82-1	
2,4,5-Trichlorophenol	Not detected	5		ug/L	2	95-95-4	
2,4,6-Trichlorophenol	Not detected	4		ug/L	2	88-06-2	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/21/24 16:55, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	29	1		ug/L	1	123-91-1	

Lab Sample ID: S62233.09
Sample Tag: P2-MW-04_051624 MS
Collected Date/Time: 05/16/2024 14:00
Matrix: Groundwater
COC Reference: 2

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.8	IR
2	1L Amber	None	Yes	5.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/22/24 11:30	BDO	
BNA Extraction	Completed	SW3510C	05/23/24 11:00	JWR	

Organics - Semi-Volatiles

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 05/23/24 20:14, Analyst: PL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acenaphthene	34	5		ug/L	2	83-32-9	1
Acenaphthylene	33	5		ug/L	2	208-96-8	1
Anthracene	37	5		ug/L	2	120-12-7	1
Benzo(a)anthracene	37	1		ug/L	2	56-55-3	1
Benzo(b)fluoranthene	38	1		ug/L	2	205-99-2	1
Benzo(k)fluoranthene	40	1		ug/L	2	207-08-9	1
Benzo(ghi)perylene	25	1		ug/L	2	191-24-2	1
Benzo(a)pyrene	36	1		ug/L	2	50-32-8	1
bis(2-Chloroethoxy)methane	33	5		ug/L	2	111-91-1	1
bis(2-Chloroethyl)ether	29	5		ug/L	2	111-44-4	1
bis(2-Chloroisopropyl)ether*	28	5		ug/L	2	108-60-1	1
bis(2-Ethylhexyl)phthalate	38	5		ug/L	2	117-81-7	1
4-Bromophenyl phenyl ether	38	5		ug/L	2	101-55-3	1
Butyl benzyl phthalate	37	5		ug/L	2	85-68-7	1
4-Chloroaniline	15	10		ug/L	2	106-47-8	1
2-Chloronaphthalene	33	5		ug/L	2	91-58-7	1
4-Chloro-3-methylphenol	34	5		ug/L	2	59-50-7	1
2-Chlorophenol	27	10		ug/L	2	95-57-8	1
4-Chlorophenyl phenyl ether	37	5		ug/L	2	7005-72-3	1
Chrysene	37	1		ug/L	2	218-01-9	1
3-, 4-Methylphenol (p,m-Cresol)	24	20		ug/L	2	3/4-CRESOL	1
2-Methylphenol (o-Cresol)	25	10		ug/L	2	95-48-7	1
Dibenzo(ah)anthracene	28	2		ug/L	2	53-70-3	1
Dibenzofuran	36	4		ug/L	2	132-64-9	1
di-n-Butyl phthalate	38	5		ug/L	2	84-74-2	1
1,2-Dichlorobenzene	22	1		ug/L	2	95-50-1	1
1,3-Dichlorobenzene	21	1		ug/L	2	541-73-1	1
1,4-Dichlorobenzene	21	1		ug/L	2	106-46-7	1
3,3'-Dichlorobenzidine	Not detected	5		ug/L	2	91-94-1	1
2,4-Dichlorophenol	34	10		ug/L	2	120-83-2	1
Diethyl phthalate	37	5		ug/L	2	84-66-2	1
2,4-Dimethylphenol	28	5		ug/L	2	105-67-9	1
Dimethyl phthalate	37	5		ug/L	2	131-11-3	1
4,6-Dinitro-2-methylphenol	36	20		ug/L	2	534-52-1	1

1-Sample spiked at 0.050 mg/l

Lab Sample ID: S62233.09 (continued)
Sample Tag: P2-MW-04_051624 MS

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 05/23/24 20:14, Analyst: PL (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
2,4-Dinitrophenol	41	25		ug/L	2	51-28-5	1
2,4-Dinitrotoluene	34	5		ug/L	2	121-14-2	1
2,6-Dinitrotoluene	37	5		ug/L	2	606-20-2	1
1,2-Diphenylhydrazine*	36	5		ug/L	2	122-66-7	1
di-n-Octyl phthalate	43	5		ug/L	2	117-84-0	1
Fluoranthene	39	1		ug/L	2	206-44-0	1
Fluorene	37	5		ug/L	2	86-73-7	1
Hexachlorobenzene	36	5		ug/L	2	118-74-1	1
Hexachlorobutadiene	24	10		ug/L	2	87-68-3	1
Hexachlorocyclopentadiene*	21	5		ug/L	2	77-47-4	1
Hexachloroethane	20	5		ug/L	2	67-72-1	1
Indeno(1,2,3-cd)pyrene	27	2		ug/L	2	193-39-5	1
Isophorone	33	5		ug/L	2	78-59-1	1
2-Methylnaphthalene	31	5		ug/L	2	91-57-6	1
Naphthalene	28	5		ug/L	2	91-20-3	1
2-Nitroaniline	33	25		ug/L	2	88-74-4	1
3-Nitroaniline	Not detected	25		ug/L	2	99-09-2	1
4-Nitroaniline	29	25		ug/L	2	100-01-6	1
Nitrobenzene	31	5		ug/L	2	98-95-3	1
2-Nitrophenol	34	5		ug/L	2	88-75-5	1
4-Nitrophenol	Not detected	25		ug/L	2	100-02-7	1
N-Nitrosodiphenylamine	37	5		ug/L	2	86-30-6	1
N-Nitrosodi-n-propylamine	30	5		ug/L	2	621-64-7	1
Pentachlorophenol	35	5		ug/L	2	87-86-5	1
Phenanthrene	37	2		ug/L	2	85-01-8	1
Phenol	13	5		ug/L	2	108-95-2	1
Pyrene	37	5		ug/L	2	129-00-0	1
1,2,4-Trichlorobenzene	27	5		ug/L	2	120-82-1	1
2,4,5-Trichlorophenol	39	5		ug/L	2	95-95-4	1
2,4,6-Trichlorophenol	37	4		ug/L	2	88-06-2	1

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/21/24 22:38, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	72	1		ug/L	1	123-91-1	2

1-Sample spiked at 0.050 mg/l
2-Spiked at 50 ug/L

Lab Sample ID: S62233.10
Sample Tag: P2-MW-04_051624 MSD
Collected Date/Time: 05/16/2024 14:00
Matrix: Groundwater
COC Reference: 2

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.8	IR
2	1L Amber	None	Yes	5.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/22/24 11:30	BDO	
BNA Extraction	Completed	SW3510C	05/23/24 11:00	JWR	

Organics - Semi-Volatiles

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 05/23/24 20:44, Analyst: PL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acenaphthene	35	5		ug/L	2	83-32-9	1
Acenaphthylene	34	5		ug/L	2	208-96-8	1
Anthracene	38	5		ug/L	2	120-12-7	1
Benzo(a)anthracene	38	1		ug/L	2	56-55-3	1
Benzo(b)fluoranthene	40	1		ug/L	2	205-99-2	1
Benzo(k)fluoranthene	41	1		ug/L	2	207-08-9	1
Benzo(ghi)perylene	25	1		ug/L	2	191-24-2	1
Benzo(a)pyrene	37	1		ug/L	2	50-32-8	1
bis(2-Chloroethoxy)methane	33	5		ug/L	2	111-91-1	1
bis(2-Chloroethyl)ether	30	5		ug/L	2	111-44-4	1
bis(2-Chloroisopropyl)ether*	29	5		ug/L	2	108-60-1	1
bis(2-Ethylhexyl)phthalate	39	5		ug/L	2	117-81-7	1
4-Bromophenyl phenyl ether	38	5		ug/L	2	101-55-3	1
Butyl benzyl phthalate	38	5		ug/L	2	85-68-7	1
4-Chloroaniline	16	10		ug/L	2	106-47-8	1
2-Chloronaphthalene	34	5		ug/L	2	91-58-7	1
4-Chloro-3-methylphenol	34	5		ug/L	2	59-50-7	1
2-Chlorophenol	28	10		ug/L	2	95-57-8	1
4-Chlorophenyl phenyl ether	38	5		ug/L	2	7005-72-3	1
Chrysene	38	1		ug/L	2	218-01-9	1
3-, 4-Methylphenol (p,m-Cresol)	25	20		ug/L	2	3/4-CRESOL	1
2-Methylphenol (o-Cresol)	25	10		ug/L	2	95-48-7	1
Dibenzo(ah)anthracene	28	2		ug/L	2	53-70-3	1
Dibenzofuran	37	4		ug/L	2	132-64-9	1
di-n-Butyl phthalate	38	5		ug/L	2	84-74-2	1
1,2-Dichlorobenzene	24	1		ug/L	2	95-50-1	1
1,3-Dichlorobenzene	22	1		ug/L	2	541-73-1	1
1,4-Dichlorobenzene	23	1		ug/L	2	106-46-7	1
3,3'-Dichlorobenzidine	Not detected	5		ug/L	2	91-94-1	1
2,4-Dichlorophenol	35	10		ug/L	2	120-83-2	1
Diethyl phthalate	37	5		ug/L	2	84-66-2	1
2,4-Dimethylphenol	29	5		ug/L	2	105-67-9	1
Dimethyl phthalate	38	5		ug/L	2	131-11-3	1
4,6-Dinitro-2-methylphenol	36	20		ug/L	2	534-52-1	1

1-Sample spiked at 0.050 mg/l

Lab Sample ID: S62233.10 (continued)
Sample Tag: P2-MW-04_051624 MSD

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 05/23/24 20:44, Analyst: PL (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
2,4-Dinitrophenol	42	25		ug/L	2	51-28-5	1
2,4-Dinitrotoluene	36	5		ug/L	2	121-14-2	1
2,6-Dinitrotoluene	37	5		ug/L	2	606-20-2	1
1,2-Diphenylhydrazine*	37	5		ug/L	2	122-66-7	1
di-n-Octyl phthalate	45	5		ug/L	2	117-84-0	1
Fluoranthene	40	1		ug/L	2	206-44-0	1
Fluorene	38	5		ug/L	2	86-73-7	1
Hexachlorobenzene	36	5		ug/L	2	118-74-1	1
Hexachlorobutadiene	26	10		ug/L	2	87-68-3	1
Hexachlorocyclopentadiene*	23	5		ug/L	2	77-47-4	1
Hexachloroethane	21	5		ug/L	2	67-72-1	1
Indeno(1,2,3-cd)pyrene	28	2		ug/L	2	193-39-5	1
Isophorone	33	5		ug/L	2	78-59-1	1
2-Methylnaphthalene	32	5		ug/L	2	91-57-6	1
Naphthalene	29	5		ug/L	2	91-20-3	1
2-Nitroaniline	34	25		ug/L	2	88-74-4	1
3-Nitroaniline	Not detected	25		ug/L	2	99-09-2	1
4-Nitroaniline	29	25		ug/L	2	100-01-6	1
Nitrobenzene	31	5		ug/L	2	98-95-3	1
2-Nitrophenol	35	5		ug/L	2	88-75-5	1
4-Nitrophenol	Not detected	25		ug/L	2	100-02-7	1
N-Nitrosodiphenylamine	38	5		ug/L	2	86-30-6	1
N-Nitrosodi-n-propylamine	31	5		ug/L	2	621-64-7	1
Pentachlorophenol	36	5		ug/L	2	87-86-5	1
Phenanthrene	37	2		ug/L	2	85-01-8	1
Phenol	14	5		ug/L	2	108-95-2	1
Pyrene	38	5		ug/L	2	129-00-0	1
1,2,4-Trichlorobenzene	28	5		ug/L	2	120-82-1	1
2,4,5-Trichlorophenol	40	5		ug/L	2	95-95-4	1
2,4,6-Trichlorophenol	39	4		ug/L	2	88-06-2	1

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/21/24 23:03, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	86	1		ug/L	1	123-91-1	2

1-Sample spiked at 0.050 mg/l
2-Spiked at 50 ug/L

Lab Sample ID: S62233.11
Sample Tag: MW-21-139_051624
Collected Date/Time: 05/16/2024 16:20
Matrix: Groundwater
COC Reference: 2

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/22/24 11:30	BDO	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/21/24 17:19, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	Not detected	1		ug/L	1	123-91-1	

Lab Sample ID: S62233.12
Sample Tag: MW-14-57_051724
Collected Date/Time: 05/17/2024 09:55
Matrix: Groundwater
COC Reference: 2

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/22/24 11:30	BDO	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/21/24 17:44, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	Not detected	1		ug/L	1	123-91-1	

Lab Sample ID: S62233.13
Sample Tag: MW-01(2)_051724
Collected Date/Time: 05/17/2024 11:40
Matrix: Groundwater
COC Reference: 2

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/21/24 11:20	NDK	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/21/24 07:03, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	10	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	

Lab Sample ID: S62233.13 (continued)
Sample Tag: MW-01(2)_051724

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/21/24 07:03, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Lab Sample ID: S62233.14
Sample Tag: MW-21-140_051624
Collected Date/Time: 05/16/2024 11:45
Matrix: Groundwater
COC Reference: 3

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/22/24 11:30	BDO	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/21/24 18:08, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	Not detected	1		ug/L	1	123-91-1	

Lab Sample ID: S62233.15
Sample Tag: MW-16-85_051624
Collected Date/Time: 05/16/2024 12:50
Matrix: Groundwater
COC Reference: 3

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/21/24 11:20	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/21/24 18:33, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	18	1		ug/L	1	123-91-1	

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/21/24 07:26, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	

Lab Sample ID: S62233.15 (continued)
Sample Tag: MW-16-85_051624

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/21/24 07:26, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Lab Sample ID: S62233.16
Sample Tag: MW-16-76_051624
Collected Date/Time: 05/16/2024 14:20
Matrix: Groundwater
COC Reference: 3

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/22/24 11:30	BDO	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/21/24 18:58, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	3	1		ug/L	1	123-91-1	

Lab Sample ID: S62233.17
Sample Tag: MW-14-63_051624
Collected Date/Time: 05/16/2024 15:50
Matrix: Groundwater
COC Reference: 3

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/22/24 11:30	BDO	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/21/24 19:22, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	3	1		ug/L	1	123-91-1	

Lab Sample ID: S62233.18
Sample Tag: Trip Blank
Collected Date/Time: 05/16/2024 00:01
Matrix: Water
COC Reference: 3

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40mL Glass	HCL	Yes	5.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/21/24 11:20	NDK	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/21/24 02:23, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	

Lab Sample ID: S62233.18 (continued)
Sample Tag: Trip Blank

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/21/24 02:23, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Quality Control Report

Report ID: S62233.01(01)+QC01
Generated on 05/28/2024

Report to

Attention: Kaitlyn Hunt
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 C:947-777-5215 FAX:

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Report Summary

Lab Sample ID(s): S62233.01-S62233.18
Project: 30214036.0470A / RACER Lansing GWS
Submitted Date/Time: 05/17/2024 13:15
Sampled by: Schulte / Redner / Cobern
P.O. #: US3460016166

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Report Flag Descriptions

*: QC result is outside of indicated control limits
W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.

Barbara Ball
Quality Assurance Manager

Lab Sample ID: S62233.01
Sample Tag: MW-12-09_051624
Collected Date/Time: 05/16/2024 10:55
Matrix: Groundwater
COC Reference: 1

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/21/24 10:23	K240520B	VS240520W3	Yes	BLK/LCS/LCSD
Volatile Organics - DEQ List	SW5030C/8260C	05/21/24 04:19	240520B3	VF240520W4	Yes	BLK/LCS/LCSD

Lab Sample ID: S62233.02
Sample Tag: MW-12-18_051624
Collected Date/Time: 05/16/2024 12:40
Matrix: Groundwater
COC Reference: 1

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	05/21/24 04:43	240520B3	VF240520W4	Yes	BLK/LCS/LCSD

Lab Sample ID: S62233.03
Sample Tag: MW-14-54_051624
Collected Date/Time: 05/16/2024 13:25
Matrix: Groundwater
COC Reference: 1

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	05/21/24 05:06	240520B3	VF240520W4	Yes	BLK/LCS/LCSD
Volatile Organics - DEQ List (Replicate 01)	SW5030C/8260C	05/21/24 21:31	240521A9	VF240521W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S62233.04
Sample Tag: MW-14-55_051624
Collected Date/Time: 05/16/2024 15:45
Matrix: Groundwater
COC Reference: 1

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	05/21/24 05:29	240520B3	VF240520W4	Yes	BLK/LCS/LCSD

Lab Sample ID: S62233.05
Sample Tag: MW-14-59_051724
Collected Date/Time: 05/17/2024 09:45
Matrix: Groundwater
COC Reference: 1

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Semi-Volatiles						
Semi-Volatile Organics - MDEQ	SW8270D	05/23/24 18:41	U240523	SF240523W1	Yes	BLK/LCS/MS/MSD
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/21/24 10:47	K240520B	VS240520W3	Yes	BLK/LCS/LCSD
Volatile Organics - DEQ List	SW5030C/8260C	05/21/24 05:52	240520B3	VF240520W4	Yes	BLK/LCS/LCSD

Lab Sample ID: S62233.06
Sample Tag: MW-14-60_051724
Collected Date/Time: 05/17/2024 11:40
Matrix: Groundwater
COC Reference: 1

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Semi-Volatiles						
Semi-Volatile Organics - MDEQ	SW8270D	05/23/24 19:12	U240523	SF240523W1	Yes	BLK/LCS/MS/MSD
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/21/24 16:06	K240521	VD240521W1	Yes	BLK/LCS/LCSD/MS/MS
Volatile Organics - DEQ List	SW5030C/8260C	05/21/24 06:16	240520B3	VF240520W4	Yes	BLK/LCS/LCSD

Lab Sample ID: S62233.07

Sample Tag: DUP-01_051624

Collected Date/Time: 05/16/2024 00:01

Matrix: Groundwater

COC Reference: 1

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/21/24 16:30	K240521	VD240521W1	Yes	BLK/LCS/LCSD/MS/MS
Volatile Organics - DEQ List	SW5030C/8260C	05/21/24 06:39	240520B3	VF240520W4	Yes	BLK/LCS/LCSD

Lab Sample ID: S62233.08
Sample Tag: P2-MW-04_051624
Collected Date/Time: 05/16/2024 14:00
Matrix: Groundwater
COC Reference: 2

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Semi-Volatiles						
Semi-Volatile Organics - MDEQ	SW8270D	05/23/24 19:43	U240523	SF240523W1	Yes	BLK/LCS/MS/MSD
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/21/24 16:55	K240521	VD240521W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S62233.09
Sample Tag: P2-MW-04_051624 MS
Collected Date/Time: 05/16/2024 14:00
Matrix: Groundwater
COC Reference: 2

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Semi-Volatiles						
Semi-Volatile Organics - MDEQ	SW8270D	05/23/24 20:14	U240523	SF240523W1	Yes	BLK/LCS/MS/MSD
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/21/24 22:38	K240521	VD240521W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S62233.10
Sample Tag: P2-MW-04_051624 MSD
Collected Date/Time: 05/16/2024 14:00
Matrix: Groundwater
COC Reference: 2

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Semi-Volatiles						
Semi-Volatile Organics - MDEQ	SW8270D	05/23/24 20:44	U240523	SF240523W1	Yes	BLK/LCS/MS/MSD
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/21/24 23:03	K240521	VD240521W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S62233.11
Sample Tag: MW-21-139_051624
Collected Date/Time: 05/16/2024 16:20
Matrix: Groundwater
COC Reference: 2

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/21/24 17:19	K240521	VD240521W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S62233.12
Sample Tag: MW-14-57_051724
Collected Date/Time: 05/17/2024 09:55
Matrix: Groundwater
COC Reference: 2

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/21/24 17:44	K240521	VD240521W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S62233.13
Sample Tag: MW-01(2)_051724
Collected Date/Time: 05/17/2024 11:40
Matrix: Groundwater
COC Reference: 2

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	05/21/24 07:03	240520B3	VF240520W4	Yes	BLK/LCS/LCSD

Lab Sample ID: S62233.14
Sample Tag: MW-21-140_051624
Collected Date/Time: 05/16/2024 11:45
Matrix: Groundwater
COC Reference: 3

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/21/24 18:08	K240521	VD240521W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S62233.15

Sample Tag: MW-16-85_051624

Collected Date/Time: 05/16/2024 12:50

Matrix: Groundwater

COC Reference: 3

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/21/24 18:33	K240521	VD240521W1	Yes	BLK/LCS/LCSD/MS/MS
Volatile Organics - DEQ List	SW5030C/8260C	05/21/24 07:26	240520B3	VF240520W4	Yes	BLK/LCS/LCSD

Lab Sample ID: S62233.16
Sample Tag: MW-16-76_051624
Collected Date/Time: 05/16/2024 14:20
Matrix: Groundwater
COC Reference: 3

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/21/24 18:58	K240521	VD240521W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S62233.17
Sample Tag: MW-14-63_051624
Collected Date/Time: 05/16/2024 15:50
Matrix: Groundwater
COC Reference: 3

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/21/24 19:22	K240521	VD240521W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S62233.18

Sample Tag: Trip Blank

Collected Date/Time: 05/16/2024 00:01

Matrix: Water

COC Reference: 3

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	05/21/24 02:23	240520B3	VF240520W4	Yes	BLK/LCS/LCSD

QC Report - Prep Batch Summary

Organics - Semi-Volatiles, Prep Batch ID: SF240523W1

Surrogates: Yes, QC Types: BLK/LCS/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S62233.05	Semi-Volatile Organics - MDEQ	SW8270D	05/23/24 18:41	U240523
S62233.06	Semi-Volatile Organics - MDEQ	SW8270D	05/23/24 19:12	U240523
S62233.08	Semi-Volatile Organics - MDEQ	SW8270D	05/23/24 19:43	U240523
S62233.09	Semi-Volatile Organics - MDEQ	SW8270D	05/23/24 20:14	U240523
S62233.10	Semi-Volatile Organics - MDEQ	SW8270D	05/23/24 20:44	U240523

Organics - Volatiles, Prep Batch ID: VD240521W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S62233.06	1,4-Dioxane	SW8260B - SIM	05/21/24 16:06	K240521
S62233.07	1,4-Dioxane	SW8260B - SIM	05/21/24 16:30	K240521
S62233.08	1,4-Dioxane	SW8260B - SIM	05/21/24 16:55	K240521
S62233.09	1,4-Dioxane	SW8260B - SIM	05/21/24 22:38	K240521
S62233.10	1,4-Dioxane	SW8260B - SIM	05/21/24 23:03	K240521
S62233.11	1,4-Dioxane	SW8260B - SIM	05/21/24 17:19	K240521
S62233.12	1,4-Dioxane	SW8260B - SIM	05/21/24 17:44	K240521
S62233.14	1,4-Dioxane	SW8260B - SIM	05/21/24 18:08	K240521
S62233.15	1,4-Dioxane	SW8260B - SIM	05/21/24 18:33	K240521
S62233.16	1,4-Dioxane	SW8260B - SIM	05/21/24 18:58	K240521
S62233.17	1,4-Dioxane	SW8260B - SIM	05/21/24 19:22	K240521

Organics - Volatiles, Prep Batch ID: VF240520W4

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S62233.01	Volatile Organics - DEQ List	SW5030C/8260C	05/21/24 04:19	240520B3
S62233.02	Volatile Organics - DEQ List	SW5030C/8260C	05/21/24 04:43	240520B3
S62233.03	Volatile Organics - DEQ List	SW5030C/8260C	05/21/24 05:06	240520B3
S62233.04	Volatile Organics - DEQ List	SW5030C/8260C	05/21/24 05:29	240520B3
S62233.05	Volatile Organics - DEQ List	SW5030C/8260C	05/21/24 05:52	240520B3
S62233.06	Volatile Organics - DEQ List	SW5030C/8260C	05/21/24 06:16	240520B3
S62233.07	Volatile Organics - DEQ List	SW5030C/8260C	05/21/24 06:39	240520B3
S62233.13	Volatile Organics - DEQ List	SW5030C/8260C	05/21/24 07:03	240520B3
S62233.15	Volatile Organics - DEQ List	SW5030C/8260C	05/21/24 07:26	240520B3
S62233.18	Volatile Organics - DEQ List	SW5030C/8260C	05/21/24 02:23	240520B3

Organics - Volatiles, Prep Batch ID: VF240521W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S62233.03	Volatile Organics - DEQ List (Replicate 01)	SW5030C/8260C	05/21/24 21:31	240521A9

Organics - Volatiles, Prep Batch ID: VS240520W3

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S62233.01	1,4-Dioxane	SW8260B - SIM	05/21/24 10:23	K240520B
S62233.05	1,4-Dioxane	SW8260B - SIM	05/21/24 10:47	K240520B

QC Report - Surrogates per Lab Sample

Lab Sample ID: S62233.01

Sample Tag: MW-12-09_051624

Collected Date/Time: 05/16/2024 10:55

Matrix: Groundwater

COC Reference: 1

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240520B3, Run Date: 05/21/2024 04:19, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**99.7**	80.0	124.0
1,2-Dichloroethane-D4		**102.8**	72.0	125.0
Toluene-D8		**100.9**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S62233.02

Sample Tag: MW-12-18_051624

Collected Date/Time: 05/16/2024 12:40

Matrix: Groundwater

COC Reference: 1

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240520B3, Run Date: 05/21/2024 04:43, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**99.7**	80.0	124.0
1,2-Dichloroethane-D4		**100.0**	72.0	125.0
Toluene-D8		**99.7**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S62233.03

Sample Tag: MW-14-54_051624

Collected Date/Time: 05/16/2024 13:25

Matrix: Groundwater

COC Reference: 1

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240520B3, Run Date: 05/21/2024 05:06, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**100.8**	80.0	124.0
1,2-Dichloroethane-D4		**100.3**	72.0	125.0
Toluene-D8		**100.1**	89.0	112.0

Organics - Volatiles, Analysis: Volatile Organics - DEQ List (Replicate 01)

Run in Batch: 240521A9, Run Date: 05/21/2024 21:31, Matrix: WW, Dilution: 10

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**109.6**	80.0	124.0
1,2-Dichloroethane-D4		**88.6**	72.0	125.0
Toluene-D8		**92.8**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S62233.04

Sample Tag: MW-14-55_051624

Collected Date/Time: 05/16/2024 15:45

Matrix: Groundwater

COC Reference: 1

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240520B3, Run Date: 05/21/2024 05:29, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**98.4**	80.0	124.0
1,2-Dichloroethane-D4		**98.9**	72.0	125.0
Toluene-D8		**99.3**	89.0	112.0

Lab Sample ID: S62233.05

Sample Tag: MW-14-59_051724

Collected Date/Time: 05/17/2024 09:45

Matrix: Groundwater

COC Reference: 1

Organics - Semi-Volatiles, Analysis: Semi-Volatile Organics - MDEQ

Run in Batch: U240523, Run Date: 05/23/2024 18:41, Matrix: WW, Dilution: 2

Surrogate	Flags	%Rec	LCL	UCL
2-Fluorophenol		**40.9**	10.0	110.0
Phenol-D5		**32.3**	10.0	110.0
Nitrobenzene-D5		**73.2**	10.0	114.0
2-Fluorobiphenyl		**80.3**	10.0	116.0
2,4,6-Tribromophenol		**89.9**	10.0	123.0
Terphenyl-D14		**87.6**	10.0	141.0

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240520B3, Run Date: 05/21/2024 05:52, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**97.9**	80.0	124.0
1,2-Dichloroethane-D4		**98.5**	72.0	125.0
Toluene-D8		**99.3**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S62233.06

Sample Tag: MW-14-60_051724

Collected Date/Time: 05/17/2024 11:40

Matrix: Groundwater

COC Reference: 1

Organics - Semi-Volatiles, Analysis: Semi-Volatile Organics - MDEQ

Run in Batch: U240523, Run Date: 05/23/2024 19:12, Matrix: WW, Dilution: 2

Surrogate	Flags	%Rec	LCL	UCL
2-Fluorophenol		**37.7**	10.0	110.0
Phenol-D5		**29.0**	10.0	110.0
Nitrobenzene-D5		**71.1**	10.0	114.0
2-Fluorobiphenyl		**78.3**	10.0	116.0
2,4,6-Tribromophenol		**88.5**	10.0	123.0
Terphenyl-D14		**85.4**	10.0	141.0

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240520B3, Run Date: 05/21/2024 06:16, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**99.6**	80.0	124.0
1,2-Dichloroethane-D4		**99.0**	72.0	125.0
Toluene-D8		**99.7**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S62233.07

Sample Tag: DUP-01_051624

Collected Date/Time: 05/16/2024 00:01

Matrix: Groundwater

COC Reference: 1

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240520B3, Run Date: 05/21/2024 06:39, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**99.9**	80.0	124.0
1,2-Dichloroethane-D4		**96.8**	72.0	125.0
Toluene-D8		**99.8**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S62233.08

Sample Tag: P2-MW-04_051624

Collected Date/Time: 05/16/2024 14:00

Matrix: Groundwater

COC Reference: 2

Organics - Semi-Volatiles, Analysis: Semi-Volatile Organics - MDEQ

Run in Batch: U240523, Run Date: 05/23/2024 19:43, Matrix: WW, Dilution: 2

Surrogate	Flags	**%Rec**	LCL	UCL
2-Fluorophenol		**36.3**	10.0	110.0
Phenol-D5		**27.3**	10.0	110.0
Nitrobenzene-D5		**68.8**	10.0	114.0
2-Fluorobiphenyl		**76.2**	10.0	116.0
2,4,6-Tribromophenol		**86.9**	10.0	123.0
Terphenyl-D14		**84.8**	10.0	141.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S62233.13

Sample Tag: MW-01(2)_051724

Collected Date/Time: 05/17/2024 11:40

Matrix: Groundwater

COC Reference: 2

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240520B3, Run Date: 05/21/2024 07:03, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**100.1**	80.0	124.0
1,2-Dichloroethane-D4		**101.4**	72.0	125.0
Toluene-D8		**99.5**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S62233.15

Sample Tag: MW-16-85_051624

Collected Date/Time: 05/16/2024 12:50

Matrix: Groundwater

COC Reference: 3

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240520B3, Run Date: 05/21/2024 07:26, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**100.8**	80.0	124.0
1,2-Dichloroethane-D4		**96.1**	72.0	125.0
Toluene-D8		**99.5**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S62233.18

Sample Tag: Trip Blank

Collected Date/Time: 05/16/2024 00:01

Matrix: Water

COC Reference: 3

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240520B3, Run Date: 05/21/2024 02:23, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**99.2**	80.0	124.0
1,2-Dichloroethane-D4		**105.2**	72.0	125.0
Toluene-D8		**100.6**	89.0	112.0

Organics - Semi-Volatiles, Prep Batch ID: SF240523W1

QC Types: BLK/LCS/MS/MSD

Blank (BLK)

Lab Sample ID: U240523.BLKW23A

Run in Batch: U240523, Run Date: 05/23/2024 17:40, Prep Date: 05/23/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
2-Fluorophenol		**33.2**	10.0	110.0
Phenol-D5		**25.6**	10.0	110.0
Nitrobenzene-D5		**52.4**	10.0	114.0
2-Fluorobiphenyl		**52.1**	10.0	116.0
2,4,6-Tribromophenol		**60.6**	10.0	123.0
Terphenyl-D14		**53.9**	10.0	141.0

Laboratory Control Sample (LCS)

Lab Sample ID: U240523.LCSW23A

Run in Batch: U240523, Run Date: 05/23/2024 18:10, Prep Date: 05/23/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
2-Fluorophenol		**51.0**	10.0	110.0
Phenol-D5		**40.0**	10.0	110.0
Nitrobenzene-D5		**81.5**	10.0	114.0
2-Fluorobiphenyl		**81.4**	10.0	116.0
2,4,6-Tribromophenol		**102.2**	10.0	123.0
Terphenyl-D14		**84.6**	10.0	141.0

Matrix Spike (MS)

Lab Sample ID: U240523.6223309M, Parent Sample ID: S62233.08

Run in Batch: U240523, Run Date: 05/23/2024 20:14, Prep Date: 05/23/2024, Matrix: WW, Dilution: 2

Surrogate	Flags	%Rec	LCL	UCL
2-Fluorophenol		**34.1**	10.0	110.0
Phenol-D5		**25.9**	10.0	110.0
Nitrobenzene-D5		**60.1**	10.0	114.0
2-Fluorobiphenyl		**65.6**	10.0	116.0
2,4,6-Tribromophenol		**78.3**	10.0	123.0
Terphenyl-D14		**75.0**	10.0	141.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: U240523.6223310N, Parent Sample ID: U240523.6223309M

Run in Batch: U240523, Run Date: 05/23/2024 20:44, Prep Date: 05/23/2024, Matrix: WW, Dilution: 2

Surrogate	Flags	%Rec	LCL	UCL
2-Fluorophenol		**35.7**	10.0	110.0
Phenol-D5		**27.0**	10.0	110.0
Nitrobenzene-D5		**62.5**	10.0	114.0
2-Fluorobiphenyl		**68.2**	10.0	116.0
2,4,6-Tribromophenol		**81.6**	10.0	123.0
Terphenyl-D14		**77.5**	10.0	141.0

Organics - Volatiles, Prep Batch ID: VD240521W1

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: K240521.BLK21A

Run in Batch: K240521, Run Date: 05/21/2024 14:52, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
No Surrogates				

Laboratory Control Sample (LCS)

Lab Sample ID: K240521.LCS21A

Run in Batch: K240521, Run Date: 05/21/2024 13:14, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
No Surrogates				

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: K240521.LCSD21A, Parent Sample ID: K240521.LCS21A

Run in Batch: K240521, Run Date: 05/21/2024 13:39, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
No Surrogates				

Matrix Spike (MS)

Lab Sample ID: K240521.6223309M, Parent Sample ID: S62233.08

Run in Batch: K240521, Run Date: 05/21/2024 22:38, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
No Surrogates				

Matrix Spike Duplicate (MSD)

Lab Sample ID: K240521.6223310N, Parent Sample ID: K240521.6223309M

Run in Batch: K240521, Run Date: 05/21/2024 23:03, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
No Surrogates				

Organics - Volatiles, Prep Batch ID: VF240520W4

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240520B3.BLKW20B

Run in Batch: 240520B3, Run Date: 05/21/2024 02:00, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**98.9**	80.0	124.0
1,2-Dichloroethane-D4		**104.2**	72.0	125.0
Toluene-D8		**100.5**	89.0	112.0

Laboratory Control Sample (LCS)

Lab Sample ID: 240520B3.LCSW20B

Run in Batch: 240520B3, Run Date: 05/21/2024 00:27, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**103.1**	80.0	124.0
1,2-Dichloroethane-D4		**110.5**	72.0	125.0
Toluene-D8		**99.9**	89.0	112.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240520B3.LCSDW20B, Parent Sample ID: 240520B3.LCSW20B

Run in Batch: 240520B3, Run Date: 05/21/2024 00:50, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**102.1**	80.0	124.0
1,2-Dichloroethane-D4		**110.0**	72.0	125.0
Toluene-D8		**99.6**	89.0	112.0

Organics - Volatiles, Prep Batch ID: VF240521W1

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240521A9.BLKW21A

Run in Batch: 240521A9, Run Date: 05/21/2024 15:08, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**105.9**	80.0	124.0
1,2-Dichloroethane-D4		**88.6**	72.0	125.0
Toluene-D8		**93.0**	89.0	112.0

Laboratory Control Sample (LCS)

Lab Sample ID: 240521A9.LCSW21A

Run in Batch: 240521A9, Run Date: 05/21/2024 13:32, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**106.4**	80.0	124.0
1,2-Dichloroethane-D4		**87.1**	72.0	125.0
Toluene-D8		**92.9**	89.0	112.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240521A9.LCSDW21A, Parent Sample ID: 240521A9.LCSW21A

Run in Batch: 240521A9, Run Date: 05/21/2024 13:56, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**104.4**	80.0	124.0
1,2-Dichloroethane-D4		**87.2**	72.0	125.0
Toluene-D8		**92.4**	89.0	112.0

Organics - Volatiles, Prep Batch ID: VS240520W3

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: K240520B.BLK20B

Run in Batch: K240520B, Run Date: 05/21/2024 02:36, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample (LCS)

Lab Sample ID: K240520B.LCS20B

Run in Batch: K240520B, Run Date: 05/21/2024 00:58, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: K240520B.LCSD20B, Parent Sample ID: K240520B.LCS20B

Run in Batch: K240520B, Run Date: 05/21/2024 01:23, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62233.01

Sample Tag: MW-12-09_051624

Collected Date/Time: 05/16/2024 10:55

Matrix: Groundwater

COC Reference: 1

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240520B, Run Date: 05/21/2024 10:23, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**84.1**	50.0	200.0

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240520B3, Run Date: 05/21/2024 04:19, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**106.3**	50.0	200.0
1,4-Difluorobenzene		**101.4**	50.0	200.0
Chlorobenzene-D5		**102.0**	50.0	200.0
1,4-Dichlorobenzene-D4		**98.8**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62233.02

Sample Tag: MW-12-18_051624

Collected Date/Time: 05/16/2024 12:40

Matrix: Groundwater

COC Reference: 1

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240520B3, Run Date: 05/21/2024 04:43, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**106.4**	50.0	200.0
1,4-Difluorobenzene		**101.4**	50.0	200.0
Chlorobenzene-D5		**100.6**	50.0	200.0
1,4-Dichlorobenzene-D4		**96.6**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62233.03

Sample Tag: MW-14-54_051624

Collected Date/Time: 05/16/2024 13:25

Matrix: Groundwater

COC Reference: 1

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240520B3, Run Date: 05/21/2024 05:06, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**109.3**	50.0	200.0
1,4-Difluorobenzene		**104.6**	50.0	200.0
Chlorobenzene-D5		**105.0**	50.0	200.0
1,4-Dichlorobenzene-D4		**102.4**	50.0	200.0

Organics - Volatiles, Analysis: Volatile Organics - DEQ List (Replicate 01)

Run in Batch: 240521A9, Run Date: 05/21/2024 21:31, Matrix: WW, Dilution: 10

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**98.9**	50.0	200.0
1,4-Difluorobenzene		**102.0**	50.0	200.0
Chlorobenzene-D5		**99.2**	50.0	200.0
1,4-Dichlorobenzene-D4		**103.0**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62233.04

Sample Tag: MW-14-55_051624

Collected Date/Time: 05/16/2024 15:45

Matrix: Groundwater

COC Reference: 1

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240520B3, Run Date: 05/21/2024 05:29, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**104.9**	50.0	200.0
1,4-Difluorobenzene		**100.3**	50.0	200.0
Chlorobenzene-D5		**99.0**	50.0	200.0
1,4-Dichlorobenzene-D4		**93.9**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62233.05

Sample Tag: MW-14-59_051724

Collected Date/Time: 05/17/2024 09:45

Matrix: Groundwater

COC Reference: 1

Organics - Semi-Volatiles, Analysis: Semi-Volatile Organics - MDEQ

Run in Batch: U240523, Run Date: 05/23/2024 18:41, Matrix: WW, Dilution: 2

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dichlorobenzene-D4		**90.9**	50.0	200.0
Naphthalene-D8		**90.7**	50.0	200.0
Acenaphthalene-D10		**86.3**	50.0	200.0
Phenanthrene-D10		**82.7**	50.0	200.0
Chrysene-D12		**78.5**	50.0	200.0
Perylene-D12		**79.3**	50.0	200.0

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240520B, Run Date: 05/21/2024 10:47, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**98.9**	50.0	200.0

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240520B3, Run Date: 05/21/2024 05:52, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**103.3**	50.0	200.0
1,4-Difluorobenzene		**98.1**	50.0	200.0
Chlorobenzene-D5		**98.2**	50.0	200.0
1,4-Dichlorobenzene-D4		**92.2**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62233.06

Sample Tag: MW-14-60_051724

Collected Date/Time: 05/17/2024 11:40

Matrix: Groundwater

COC Reference: 1

Organics - Semi-Volatiles, Analysis: Semi-Volatile Organics - MDEQ

Run in Batch: U240523, Run Date: 05/23/2024 19:12, Matrix: WW, Dilution: 2

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dichlorobenzene-D4		**91.6**	50.0	200.0
Naphthalene-D8		**91.1**	50.0	200.0
Acenaphthalene-D10		**87.3**	50.0	200.0
Phenanthrene-D10		**83.9**	50.0	200.0
Chrysene-D12		**79.0**	50.0	200.0
Perylene-D12		**80.0**	50.0	200.0

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240521, Run Date: 05/21/2024 16:06, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**99.6**	50.0	200.0

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240520B3, Run Date: 05/21/2024 06:16, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**103.3**	50.0	200.0
1,4-Difluorobenzene		**98.0**	50.0	200.0
Chlorobenzene-D5		**98.0**	50.0	200.0
1,4-Dichlorobenzene-D4		**93.9**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62233.07

Sample Tag: DUP-01_051624

Collected Date/Time: 05/16/2024 00:01

Matrix: Groundwater

COC Reference: 1

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240521, Run Date: 05/21/2024 16:30, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**95.6**	50.0	200.0

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240520B3, Run Date: 05/21/2024 06:39, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**110.1**	50.0	200.0
1,4-Difluorobenzene		**103.8**	50.0	200.0
Chlorobenzene-D5		**101.9**	50.0	200.0
1,4-Dichlorobenzene-D4		**96.4**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62233.08

Sample Tag: P2-MW-04_051624

Collected Date/Time: 05/16/2024 14:00

Matrix: Groundwater

COC Reference: 2

Organics - Semi-Volatiles, Analysis: Semi-Volatile Organics - MDEQ

Run in Batch: U240523, Run Date: 05/23/2024 19:43, Matrix: WW, Dilution: 2

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dichlorobenzene-D4		**87.1**	50.0	200.0
Naphthalene-D8		**87.2**	50.0	200.0
Acenaphthalene-D10		**83.7**	50.0	200.0
Phenanthrene-D10		**83.2**	50.0	200.0
Chrysene-D12		**80.2**	50.0	200.0
Perylene-D12		**76.8**	50.0	200.0

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240521, Run Date: 05/21/2024 16:55, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**78.9**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62233.11

Sample Tag: MW-21-139_051624

Collected Date/Time: 05/16/2024 16:20

Matrix: Groundwater

COC Reference: 2

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240521, Run Date: 05/21/2024 17:19, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**86.6**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62233.12

Sample Tag: MW-14-57_051724

Collected Date/Time: 05/17/2024 09:55

Matrix: Groundwater

COC Reference: 2

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240521, Run Date: 05/21/2024 17:44, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**90.5**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62233.13

Sample Tag: MW-01(2)_051724

Collected Date/Time: 05/17/2024 11:40

Matrix: Groundwater

COC Reference: 2

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240520B3, Run Date: 05/21/2024 07:03, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**109.8**	50.0	200.0
1,4-Difluorobenzene		**104.3**	50.0	200.0
Chlorobenzene-D5		**104.9**	50.0	200.0
1,4-Dichlorobenzene-D4		**101.0**	50.0	200.0

Lab Sample ID: S62233.14

Sample Tag: MW-21-140_051624

Collected Date/Time: 05/16/2024 11:45

Matrix: Groundwater

COC Reference: 3

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240521, Run Date: 05/21/2024 18:08, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**87.2**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62233.15

Sample Tag: MW-16-85_051624

Collected Date/Time: 05/16/2024 12:50

Matrix: Groundwater

COC Reference: 3

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240521, Run Date: 05/21/2024 18:33, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**82.5**	50.0	200.0

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240520B3, Run Date: 05/21/2024 07:26, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**107.4**	50.0	200.0
1,4-Difluorobenzene		**102.1**	50.0	200.0
Chlorobenzene-D5		**99.4**	50.0	200.0
1,4-Dichlorobenzene-D4		**96.1**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62233.16

Sample Tag: MW-16-76_051624

Collected Date/Time: 05/16/2024 14:20

Matrix: Groundwater

COC Reference: 3

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240521, Run Date: 05/21/2024 18:58, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**87.7**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62233.17

Sample Tag: MW-14-63_051624

Collected Date/Time: 05/16/2024 15:50

Matrix: Groundwater

COC Reference: 3

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240521, Run Date: 05/21/2024 19:22, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**78.8**	50.0	200.0

Lab Sample ID: S62233.18

Sample Tag: Trip Blank

Collected Date/Time: 05/16/2024 00:01

Matrix: Water

COC Reference: 3

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240520B3, Run Date: 05/21/2024 02:23, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**104.0**	50.0	200.0
1,4-Difluorobenzene		**102.4**	50.0	200.0
Chlorobenzene-D5		**104.1**	50.0	200.0
1,4-Dichlorobenzene-D4		**98.8**	50.0	200.0

Organics - Semi-Volatiles, Prep Batch ID: SF240523W1

QC Types: BLK/LCS/MS/MSD

Blank (BLK)

Lab Sample ID: U240523.BLKW23A

Run in Batch: U240523, Run Date: 05/23/2024 17:40, Prep Date: 05/23/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dichlorobenzene-D4		**118.1**	50.0	200.0
Naphthalene-D8		**120.7**	50.0	200.0
Acenaphthalene-D10		**113.1**	50.0	200.0
Phenanthrene-D10		**101.8**	50.0	200.0
Chrysene-D12		**89.9**	50.0	200.0
Perylene-D12		**90.4**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: U240523.LCSW23A

Run in Batch: U240523, Run Date: 05/23/2024 18:10, Prep Date: 05/23/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dichlorobenzene-D4		**116.0**	50.0	200.0
Naphthalene-D8		**117.4**	50.0	200.0
Acenaphthalene-D10		**113.0**	50.0	200.0
Phenanthrene-D10		**108.0**	50.0	200.0
Chrysene-D12		**101.2**	50.0	200.0
Perylene-D12		**104.8**	50.0	200.0

Matrix Spike (MS)

Lab Sample ID: U240523.6223309M, Parent Sample ID: S62233.08

Run in Batch: U240523, Run Date: 05/23/2024 20:14, Prep Date: 05/23/2024, Matrix: WW, Dilution: 2

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dichlorobenzene-D4		**103.7**	50.0	200.0
Naphthalene-D8		**102.6**	50.0	200.0
Acenaphthalene-D10		**101.9**	50.0	200.0
Phenanthrene-D10		**101.2**	50.0	200.0
Chrysene-D12		**101.3**	50.0	200.0
Perylene-D12		**93.4**	50.0	200.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: U240523.6223310N, Parent Sample ID: U240523.6223309M

Run in Batch: U240523, Run Date: 05/23/2024 20:44, Prep Date: 05/23/2024, Matrix: WW, Dilution: 2

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dichlorobenzene-D4		**92.3**	50.0	200.0
Naphthalene-D8		**92.1**	50.0	200.0
Acenaphthalene-D10		**91.4**	50.0	200.0
Phenanthrene-D10		**91.4**	50.0	200.0
Chrysene-D12		**91.5**	50.0	200.0
Perylene-D12		**83.1**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VD240521W1

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: K240521.BLK21A

Run in Batch: K240521, Run Date: 05/21/2024 14:52, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**91.3**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: K240521.LCS21A

Run in Batch: K240521, Run Date: 05/21/2024 13:14, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**88.6**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: K240521.LCSD21A, Parent Sample ID: K240521.LCS21A

Run in Batch: K240521, Run Date: 05/21/2024 13:39, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**93.5**	50.0	200.0

Matrix Spike (MS)

Lab Sample ID: K240521.6223309M, Parent Sample ID: S62233.08

Run in Batch: K240521, Run Date: 05/21/2024 22:38, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**95.5**	50.0	200.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: K240521.6223310N, Parent Sample ID: K240521.6223309M

Run in Batch: K240521, Run Date: 05/21/2024 23:03, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**100.7**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VF240520W4

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240520B3.BLKW20B

Run in Batch: 240520B3, Run Date: 05/21/2024 02:00, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**102.8**	50.0	200.0
1,4-Difluorobenzene		**102.3**	50.0	200.0
Chlorobenzene-D5		**101.7**	50.0	200.0
1,4-Dichlorobenzene-D4		**96.8**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 240520B3.LCSW20B

Run in Batch: 240520B3, Run Date: 05/21/2024 00:27, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**101.8**	50.0	200.0
1,4-Difluorobenzene		**104.1**	50.0	200.0
Chlorobenzene-D5		**102.8**	50.0	200.0
1,4-Dichlorobenzene-D4		**102.2**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240520B3.LCSDW20B, Parent Sample ID: 240520B3.LCSW20B

Run in Batch: 240520B3, Run Date: 05/21/2024 00:50, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**103.9**	50.0	200.0
1,4-Difluorobenzene		**104.7**	50.0	200.0
Chlorobenzene-D5		**103.8**	50.0	200.0
1,4-Dichlorobenzene-D4		**103.1**	50.0	200.0

QC Report - Internal Standards per QC Sample

Organics - Volatiles, Prep Batch ID: VF240521W1

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240521A9.BLKW21A

Run in Batch: 240521A9, Run Date: 05/21/2024 15:08, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**98.5**	50.0	200.0
1,4-Difluorobenzene		**101.8**	50.0	200.0
Chlorobenzene-D5		**99.8**	50.0	200.0
1,4-Dichlorobenzene-D4		**100.7**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 240521A9.LCSW21A

Run in Batch: 240521A9, Run Date: 05/21/2024 13:32, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**99.3**	50.0	200.0
1,4-Difluorobenzene		**98.7**	50.0	200.0
Chlorobenzene-D5		**99.3**	50.0	200.0
1,4-Dichlorobenzene-D4		**100.9**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240521A9.LCSDW21A, Parent Sample ID: 240521A9.LCSW21A

Run in Batch: 240521A9, Run Date: 05/21/2024 13:56, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**100.9**	50.0	200.0
1,4-Difluorobenzene		**101.3**	50.0	200.0
Chlorobenzene-D5		**102.0**	50.0	200.0
1,4-Dichlorobenzene-D4		**102.6**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VS240520W3

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: K240520B.BLK20B

Run in Batch: K240520B, Run Date: 05/21/2024 02:36, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**78.2**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: K240520B.LCS20B

Run in Batch: K240520B, Run Date: 05/21/2024 00:58, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**101.0**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: K240520B.LCSD20B, Parent Sample ID: K240520B.LCS20B

Run in Batch: K240520B, Run Date: 05/21/2024 01:23, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**82.9**	50.0	200.0

Organics - Semi-Volatiles, Prep Batch ID: SF240523W1

Surrogates: Yes, QC Types: BLK/LCS/MS/MSD

Blank (BLK)

Lab Sample ID: U240523.BLKW23A

Run in Batch: U240523, Run Date: 05/23/2024 17:40, Prep Date: 05/23/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Acenaphthene		ND	0.50	ug/l
Acenaphthylene		ND	0.50	ug/l
Anthracene		ND	0.50	ug/l
Benzo(a)anthracene		ND	0.50	ug/l
Benzo(b)fluoranthene		ND	0.50	ug/l
Benzo(k)fluoranthene		ND	0.50	ug/l
Benzo(ghi)perylene		ND	0.50	ug/l
Benzo(a)pyrene		ND	0.50	ug/l
bis(2-Chloroethoxy)methane		ND	0.50	ug/l
bis(2-Chloroethyl)ether		ND	0.50	ug/l
bis(2-Chloroisopropyl)ether		ND	0.50	ug/l
bis(2-Ethylhexyl)phthalate		ND	0.50	ug/l
4-Bromophenyl phenyl ether		ND	0.50	ug/l
Butyl benzyl phthalate		ND	0.50	ug/l
4-Chloroaniline		ND	0.50	ug/l
2-Chloronaphthalene		ND	0.50	ug/l
4-Chloro-3-methylphenol		ND	0.50	ug/l
2-Chlorophenol		ND	0.50	ug/l
4-Chlorophenyl phenyl ether		ND	0.50	ug/l
Chrysene		ND	0.50	ug/l
3-, 4-Methylphenol (p,m-Cresol)		ND	0.50	ug/l
2-Methylphenol (o-Cresol)		ND	0.50	ug/l
Dibenzo(ah)anthracene		ND	0.50	ug/l
Dibenzofuran		ND	0.50	ug/l
di-n-Butyl phthalate		ND	0.50	ug/l
1,2-Dichlorobenzene		ND	0.50	ug/l
1,3-Dichlorobenzene		ND	0.50	ug/l
1,4-Dichlorobenzene		ND	0.50	ug/l
3,3'-Dichlorobenzidine		ND	0.50	ug/l
2,4-Dichlorophenol		ND	0.50	ug/l
Diethyl phthalate		ND	0.50	ug/l
2,4-Dimethylphenol		ND	0.50	ug/l
Dimethyl phthalate		ND	0.50	ug/l
4,6-Dinitro-2-methylphenol		ND	0.50	ug/l
2,4-Dinitrophenol		ND	0.50	ug/l
2,4-Dinitrotoluene		ND	0.50	ug/l
2,6-Dinitrotoluene		ND	0.50	ug/l
1,2-Diphenylhydrazine		ND	0.50	ug/l
di-n-Octyl phthalate		ND	0.50	ug/l
Fluoranthene		ND	0.50	ug/l
Fluorene		ND	0.50	ug/l
Hexachlorobenzene		ND	0.50	ug/l
Hexachlorobutadiene		ND	0.50	ug/l
Hexachlorocyclopentadiene		ND	0.50	ug/l
Hexachloroethane		ND	0.50	ug/l
Indeno(1,2,3-cd)pyrene		ND	0.50	ug/l

Organics - Semi-Volatiles, Prep Batch ID: SF240523W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/MS/MSD

Blank (BLK) (continued)

Lab Sample ID: U240523.BLKW23A

Run in Batch: U240523, Run Date: 05/23/2024 17:40, Prep Date: 05/23/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Isophorone		ND	0.50	ug/l
2-Methylnaphthalene		ND	0.50	ug/l
Naphthalene		ND	0.50	ug/l
2-Nitroaniline		ND	0.50	ug/l
3-Nitroaniline		ND	0.50	ug/l
4-Nitroaniline		ND	0.50	ug/l
Nitrobenzene		ND	0.50	ug/l
2-Nitrophenol		ND	0.50	ug/l
4-Nitrophenol		ND	0.50	ug/l
N-Nitrosodiphenylamine		ND	0.50	ug/l
N-Nitrosodi-n-propylamine		ND	0.50	ug/l
Pentachlorophenol		ND	0.50	ug/l
Phenanthrene		ND	0.50	ug/l
Phenol		ND	0.50	ug/l
Pyrene		ND	0.50	ug/l
1,2,4-Trichlorobenzene		ND	0.50	ug/l
2,4,5-Trichlorophenol		ND	0.50	ug/l
2,4,6-Trichlorophenol		ND	0.50	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: U240523.LCSW23A

Run in Batch: U240523, Run Date: 05/23/2024 18:10, Prep Date: 05/23/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Acenaphthene		66.6	27	111
Acenaphthylene		70.3	16	116
Anthracene		62.8	31	119
Benzo(a)anthracene		57.1	35	119
Benzo(b)fluoranthene		54.9	27	129
Benzo(k)fluoranthene		56.9	36	120
Benzo(ghi)perylene		53.8	31	126
Benzo(a)pyrene		54.6	32	121
bis(2-Chloroethoxy)methane		84.8	23	106
bis(2-Chloroethyl)ether		73.8	29	94
bis(2-Chloroisopropyl)ether		69.5	23	91
bis(2-Ethylhexyl)phthalate		56.4	35	121
4-Bromophenyl phenyl ether		62.1	27	122
Butyl benzyl phthalate		58.4	36	117
4-Chloroaniline		76.5	19	91
2-Chloronaphthalene		59.0	21	109
4-Chloro-3-methylphenol		87.8	36	105
2-Chlorophenol		73.2	24	94
4-Chlorophenyl phenyl ether		61.7	31	114
Chrysene		56.5	34	119
3-, 4-Methylphenol (p,m-Cresol)		66.7	21	90
2-Methylphenol (o-Cresol)		68.4	23	79
Dibenzo(ah)anthracene		54.5	32	119

Organics - Semi-Volatiles, Prep Batch ID: SF240523W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/MS/MSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: U240523.LCSW23A

Run in Batch: U240523, Run Date: 05/23/2024 18:10, Prep Date: 05/23/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Dibenzofuran		70.0	29	115
di-n-Butyl phthalate		63.4	34	121
1,2-Dichlorobenzene		38.8	11	88
1,3-Dichlorobenzene		33.9	10	85
1,4-Dichlorobenzene		35.3	10	85
3,3'-Dichlorobenzidine		76.2	27	110
2,4-Dichlorophenol		89.5	33	106
Diethyl phthalate		90.7	36	116
2,4-Dimethylphenol		74.9	30	105
Dimethyl phthalate		93.4	35	116
4,6-Dinitro-2-methylphenol		66.9	19	116
2,4-Dinitrophenol		19.3	10	125
2,4-Dinitrotoluene		84.7	33	119
2,6-Dinitrotoluene		92.0	34	117
1,2-Diphenylhydrazine		77.0	34	113
di-n-Octyl phthalate		55.8	30	133
Fluoranthene		59.8	35	121
Fluorene		68.5	32	114
Hexachlorobenzene		55.6	26	126
Hexachlorobutadiene		23.7	10	95
Hexachlorocyclopentadiene		22.7	10	90
Hexachloroethane		25.1	10	82
Indeno(1,2,3-cd)pyrene		54.1	31	124
Isophorone		84.7	26	104
2-Methylnaphthalene		53.3	21	103
Naphthalene		55.4	21	99
2-Nitroaniline		87.9	34	111
3-Nitroaniline		78.3	34	111
4-Nitroaniline		77.8	34	100
Nitrobenzene		76.8	30	98
2-Nitrophenol		88.6	31	108
4-Nitrophenol		45.0	10	90
N-Nitrosodiphenylamine		88.6	31	120
N-Nitrosodi-n-propylamine		80.5	33	102
Pentachlorophenol		76.9	10	108
Phenanthrene		64.2	35	113
Phenol		38.4	10	43
Pyrene		61.1	33	120
1,2,4-Trichlorobenzene		38.1	10	98
2,4,5-Trichlorophenol		97.9	31	120
2,4,6-Trichlorophenol		96.4	31	114

Organics - Semi-Volatiles, Prep Batch ID: SF240523W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/MS/MSD

Matrix Spike (MS)

Lab Sample ID: U240523.6223309M, Parent Sample ID: S62233.08

Run in Batch: U240523, Run Date: 05/23/2024 20:14, Prep Date: 05/23/2024, Matrix: WW, Dilution: 2

Analyte	Flags	% Rec	LCL	UCL
Acenaphthene		66.4	27	111
Acenaphthylene		64.3	16	116
Anthracene		72.6	31	119
Benzo(a)anthracene		72.3	35	119
Benzo(b)fluoranthene		74.4	27	129
Benzo(k)fluoranthene		78.1	36	120
Benzo(ghi)perylene		49.1	31	126
Benzo(a)pyrene		70.2	32	121
bis(2-Chloroethoxy)methane		64.1	23	106
bis(2-Chloroethyl)ether		55.9	29	94
bis(2-Chloroisopropyl)ether		55.0	23	91
bis(2-Ethylhexyl)phthalate		73.6	35	121
4-Bromophenyl phenyl ether		72.9	27	122
Butyl benzyl phthalate		72.6	36	117
4-Chloroaniline		30.0	19	91
2-Chloronaphthalene		63.9	21	109
4-Chloro-3-methylphenol		66.3	36	105
2-Chlorophenol		52.9	24	94
4-Chlorophenyl phenyl ether		71.7	31	114
Chrysene		72.3	34	119
3-, 4-Methylphenol (p,m-Cresol)		46.5	21	90
2-Methylphenol (o-Cresol)		47.8	23	79
Dibenzo(ah)anthracene		54.0	32	119
Dibenzofuran		70.1	29	115
di-n-Butyl phthalate		72.8	34	121
1,2-Dichlorobenzene		43.3	11	88
1,3-Dichlorobenzene		40.9	10	85
1,4-Dichlorobenzene		41.6	10	85
3,3'-Dichlorobenzidine	*	1.0	27	110
2,4-Dichlorophenol		66.7	33	106
Diethyl phthalate		71.1	36	116
2,4-Dimethylphenol		54.6	30	105
Dimethyl phthalate		71.5	35	116
4,6-Dinitro-2-methylphenol		69.2	19	116
2,4-Dinitrophenol		79.8	10	125
2,4-Dinitrotoluene		66.5	33	119
2,6-Dinitrotoluene		71.1	34	117
1,2-Diphenylhydrazine		69.9	34	113
di-n-Octyl phthalate		84.0	30	133
Fluoranthene		75.1	35	121
Fluorene		71.4	32	114
Hexachlorobenzene		69.7	26	126
Hexachlorobutadiene		47.4	10	95
Hexachlorocyclopentadiene		41.2	10	90
Hexachloroethane		38.9	10	82
Indeno(1,2,3-cd)pyrene		53.0	31	124

Organics - Semi-Volatiles, Prep Batch ID: SF240523W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/MS/MSD

Matrix Spike (MS) (continued)

Lab Sample ID: U240523.6223309M, Parent Sample ID: S62233.08

Run in Batch: U240523, Run Date: 05/23/2024 20:14, Prep Date: 05/23/2024, Matrix: WW, Dilution: 2

Analyte	Flags	% Rec	LCL	UCL
Isophorone		63.1	26	104
2-Methylnaphthalene		59.8	21	103
Naphthalene		54.8	21	99
2-Nitroaniline		64.3	34	111
3-Nitroaniline	*	33.1	34	111
4-Nitroaniline		55.9	34	100
Nitrobenzene		59.3	30	98
2-Nitrophenol		66.4	31	108
4-Nitrophenol		37.1	10	90
N-Nitrosodiphenylamine		72.2	31	120
N-Nitrosodi-n-propylamine		58.8	33	102
Pentachlorophenol		68.7	10	108
Phenanthrene		70.9	35	113
Phenol		25.5	10	43
Pyrene		72.3	33	120
1,2,4-Trichlorobenzene		51.5	10	98
2,4,5-Trichlorophenol		75.0	31	120
2,4,6-Trichlorophenol		72.4	31	114

Matrix Spike Duplicate (MSD)

Lab Sample ID: U240523.6223310N, Parent Sample ID: U240523.6223309M

Run in Batch: U240523, Run Date: 05/23/2024 20:44, Prep Date: 05/23/2024, Matrix: WW, Dilution: 2

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Acenaphthene		68.5	27	111	3.2	30.0
Acenaphthylene		66.2	16	116	2.9	30.0
Anthracene		73.9	31	119	1.7	30.0
Benzo(a)anthracene		74.0	35	119	2.3	30.0
Benzo(b)fluoranthene		77.7	27	129	4.4	30.0
Benzo(k)fluoranthene		79.7	36	120	2.0	30.0
Benzo(ghi)perylene		49.0	31	126	0.3	30.0
Benzo(a)pyrene		72.5	32	121	3.1	30.0
bis(2-Chloroethoxy)methane		64.7	23	106	1.0	30.0
bis(2-Chloroethyl)ether		57.7	29	94	3.2	30.0
bis(2-Chloroisopropyl)ether		56.4	23	91	2.5	30.0
bis(2-Ethylhexyl)phthalate		74.7	35	121	1.5	30.0
4-Bromophenyl phenyl ether		74.2	27	122	1.8	30.0
Butyl benzyl phthalate		73.5	36	117	1.2	30.0
4-Chloroaniline		31.4	19	91	4.7	30.0
2-Chloronaphthalene		65.9	21	109	3.1	30.0
4-Chloro-3-methylphenol		66.8	36	105	0.7	30.0
2-Chlorophenol		54.8	24	94	3.4	30.0
4-Chlorophenyl phenyl ether		74.3	31	114	3.6	30.0
Chrysene		74.2	34	119	2.6	30.0
3-, 4-Methylphenol (p,m-Cresol)		47.7	21	90	2.6	30.0
2-Methylphenol (o-Cresol)		49.5	23	79	3.4	30.0
Dibenzo(ah)anthracene		55.0	32	119	1.9	30.0

Organics - Semi-Volatiles, Prep Batch ID: SF240523W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/MS/MSD

Matrix Spike Duplicate (MSD) (continued)

Lab Sample ID: U240523.6223310N, Parent Sample ID: U240523.6223309M

Run in Batch: U240523, Run Date: 05/23/2024 20:44, Prep Date: 05/23/2024, Matrix: WW, Dilution: 2

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Dibenzofuran		72.1	29	115	2.8	30.0
di-n-Butyl phthalate		74.2	34	121	1.9	30.0
1,2-Dichlorobenzene		45.6	11	88	5.3	30.0
1,3-Dichlorobenzene		43.1	10	85	5.1	30.0
1,4-Dichlorobenzene		43.9	10	85	5.3	30.0
3,3'-Dichlorobenzidine	*	1.0	27	110	2.0	30.0
2,4-Dichlorophenol		68.4	33	106	2.6	30.0
Diethyl phthalate		72.5	36	116	2.0	30.0
2,4-Dimethylphenol		56.5	30	105	3.6	30.0
Dimethyl phthalate		73.1	35	116	2.3	30.0
4,6-Dinitro-2-methylphenol		70.4	19	116	1.8	30.0
2,4-Dinitrophenol		81.2	10	125	1.8	30.0
2,4-Dinitrotoluene		68.9	33	119	3.5	30.0
2,6-Dinitrotoluene		72.3	34	117	1.7	30.0
1,2-Diphenylhydrazine		71.2	34	113	1.9	30.0
di-n-Octyl phthalate		87.2	30	133	3.8	30.0
Fluoranthene		77.1	35	121	2.6	30.0
Fluorene		73.1	32	114	2.4	30.0
Hexachlorobenzene		70.7	26	126	1.4	30.0
Hexachlorobutadiene		49.9	10	95	5.1	30.0
Hexachlorocyclopentadiene		44.5	10	90	7.8	30.0
Hexachloroethane		41.2	10	82	5.7	30.0
Indeno(1,2,3-cd)pyrene		53.8	31	124	1.4	30.0
Isophorone		64.3	26	104	1.9	30.0
2-Methylnaphthalene		62.0	21	103	3.5	30.0
Naphthalene		56.1	21	99	2.3	30.0
2-Nitroaniline		66.2	34	111	3.0	30.0
3-Nitroaniline		36.5	34	111	9.9	30.0
4-Nitroaniline		57.0	34	100	1.9	30.0
Nitrobenzene		60.2	30	98	1.6	30.0
2-Nitrophenol		68.0	31	108	2.5	30.0
4-Nitrophenol		38.5	10	90	3.6	30.0
N-Nitrosodiphenylamine		73.3	31	120	1.6	30.0
N-Nitrosodi-n-propylamine		60.9	33	102	3.5	30.0
Pentachlorophenol		69.5	10	108	1.2	30.0
Phenanthrene		72.4	35	113	2.0	30.0
Phenol		26.7	10	43	4.5	30.0
Pyrene		74.0	33	120	2.4	30.0
1,2,4-Trichlorobenzene		53.7	10	98	4.2	30.0
2,4,5-Trichlorophenol		77.1	31	120	2.7	30.0
2,4,6-Trichlorophenol		74.9	31	114	3.3	30.0

Organics - Volatiles, Prep Batch ID: VD240521W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: K240521.BLK21A

Run in Batch: K240521, Run Date: 05/21/2024 14:52, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
1,4-Dioxane	*	0.0312	0.02	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: K240521.LCS21A

Run in Batch: K240521, Run Date: 05/21/2024 13:14, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		104.0	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: K240521.LCSD21A, Parent Sample ID: K240521.LCS21A

Run in Batch: K240521, Run Date: 05/21/2024 13:39, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		108.1	70.0	130.0	3.8	30.0

Matrix Spike (MS)

Lab Sample ID: K240521.6223309M, Parent Sample ID: S62233.08

Run in Batch: K240521, Run Date: 05/21/2024 22:38, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		85.2	70.0	130.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: K240521.6223310N, Parent Sample ID: K240521.6223309M

Run in Batch: K240521, Run Date: 05/21/2024 23:03, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		113.9	70.0	130.0	18.2	30.0

Organics - Volatiles, Prep Batch ID: VF240520W4

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240520B3.BLKW20B

Run in Batch: 240520B3, Run Date: 05/21/2024 02:00, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Diethyl ether		ND	1.00	ug/l
Acetone		ND	10.00	ug/l
Methyl iodide		ND	1.00	ug/l
Carbon disulfide		ND	1.00	ug/l
tert-Methyl butyl ether (MTBE)		ND	1.00	ug/l
Acrylonitrile		ND	1.00	ug/l
2-Butanone (MEK)		ND	10.00	ug/l
Dichlorodifluoromethane		ND	1.00	ug/l
Chloromethane		ND	1.00	ug/l
Vinyl chloride		ND	1.00	ug/l
Bromomethane		ND	1.00	ug/l
Chloroethane		ND	1.00	ug/l
Trichlorofluoromethane		ND	1.00	ug/l
1,1-Dichloroethene		ND	1.00	ug/l
Methylene chloride		ND	1.00	ug/l
trans-1,2-Dichloroethene		ND	1.00	ug/l
1,1-Dichloroethane		ND	1.00	ug/l
cis-1,2-Dichloroethene		ND	1.00	ug/l
Tetrahydrofuran		ND	10.00	ug/l
Chloroform		ND	1.00	ug/l
Bromochloromethane		ND	1.00	ug/l
1,1,1-Trichloroethane		ND	1.00	ug/l
4-Methyl-2-pentanone (MIBK)		ND	10.00	ug/l
2-Hexanone		ND	10.00	ug/l
Carbon tetrachloride		ND	1.00	ug/l
Benzene		ND	1.00	ug/l
1,2-Dichloroethane		ND	1.00	ug/l
Trichloroethene		ND	1.00	ug/l
1,2-Dichloropropane		ND	1.00	ug/l
Bromodichloromethane		ND	1.00	ug/l
Dibromomethane		ND	1.00	ug/l
cis-1,3-Dichloropropene		ND	1.00	ug/l
Toluene		ND	1.00	ug/l
trans-1,3-Dichloropropene		ND	1.00	ug/l
1,1,2-Trichloroethane		ND	1.00	ug/l
Tetrachloroethene		ND	1.00	ug/l
trans-1,4-Dichloro-2-butene		ND	1.00	ug/l
Dibromochloromethane		ND	1.00	ug/l
1,2-Dibromoethane		ND	1.00	ug/l
Chlorobenzene		ND	1.00	ug/l
1,1,1,2-Tetrachloroethane		ND	1.00	ug/l
Ethylbenzene		ND	1.00	ug/l
p,m-Xylene		ND	2.00	ug/l
o-Xylene		ND	1.00	ug/l
Styrene		ND	1.00	ug/l
Isopropylbenzene		ND	1.00	ug/l

Organics - Volatiles, Prep Batch ID: VF240520W4 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK) (continued)

Lab Sample ID: 240520B3.BLKW20B

Run in Batch: 240520B3, Run Date: 05/21/2024 02:00, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Bromoform		ND	1.00	ug/l
1,1,2,2-Tetrachloroethane		ND	1.00	ug/l
1,2,3-Trichloropropane		ND	1.00	ug/l
n-Propylbenzene		ND	1.00	ug/l
Bromobenzene		ND	1.00	ug/l
1,3,5-Trimethylbenzene		ND	1.00	ug/l
tert-Butylbenzene		ND	1.00	ug/l
1,2,4-Trimethylbenzene		ND	1.00	ug/l
sec-Butylbenzene		ND	1.00	ug/l
p-Isopropyltoluene		ND	1.00	ug/l
1,3-Dichlorobenzene		ND	1.00	ug/l
1,4-Dichlorobenzene		ND	1.00	ug/l
1,2-Dichlorobenzene		ND	1.00	ug/l
1,2,3-Trimethylbenzene		ND	1.00	ug/l
n-Butylbenzene		ND	1.00	ug/l
Hexachloroethane		ND	1.00	ug/l
1,2-Dibromo-3-chloropropane		ND	1.00	ug/l
1,2,4-Trichlorobenzene		ND	1.00	ug/l
1,2,3-Trichlorobenzene		ND	1.00	ug/l
Naphthalene		ND	1.00	ug/l
2-Methylnaphthalene		ND	1.00	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 240520B3.LCSW20B

Run in Batch: 240520B3, Run Date: 05/21/2024 00:27, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Diethyl ether		109.5	67.4	121.2
Acetone		112.8	29.9	161.5
Methyl iodide	*	117.0	68.8	116.4
Carbon disulfide		109.4	63.8	137.4
tert-Methyl butyl ether (MTBE)		114.5	73.2	122.4
Acrylonitrile		109.9	69.9	128.9
2-Butanone (MEK)		104.1	44.0	134.4
Dichlorodifluoromethane		111.9	10.0	222.8
Chloromethane		106.9	23.8	166.5
Vinyl chloride		112.0	43.5	149.1
Bromomethane		114.4	56.8	151.3
Chloroethane		110.6	53.4	149.4
Trichlorofluoromethane		113.8	59.7	151.8
1,1-Dichloroethene		109.0	69.6	139.4
Methylene chloride		110.1	73.3	121.1
trans-1,2-Dichloroethene		111.6	73.6	129.3
1,1-Dichloroethane		114.0	71.5	126.2
cis-1,2-Dichloroethene		112.7	76.6	122.1
Tetrahydrofuran		102.3	59.0	117.9
Chloroform		110.3	78.4	124.0

Organics - Volatiles, Prep Batch ID: VF240520W4 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 240520B3.LCSW20B

Run in Batch: 240520B3, Run Date: 05/21/2024 00:27, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Bromochloromethane		113.9	78.2	120.8
1,1,1-Trichloroethane		116.4	79.4	130.9
4-Methyl-2-pentanone (MIBK)		99.7	71.6	125.2
2-Hexanone		100.0	55.4	136.9
Carbon tetrachloride		107.1	72.6	133.0
Benzene		102.5	79.9	124.9
1,2-Dichloroethane		101.5	76.0	126.3
Trichloroethene		102.0	79.7	124.2
1,2-Dichloropropane		99.3	78.6	126.4
Bromodichloromethane		104.7	80.4	128.2
Dibromomethane		103.4	76.9	122.1
cis-1,3-Dichloropropene		101.3	79.8	129.9
Toluene		104.7	79.8	124.5
trans-1,3-Dichloropropene		101.1	74.0	131.3
1,1,2-Trichloroethane		103.0	78.7	123.1
Tetrachloroethene		104.1	74.5	124.5
trans-1,4-Dichloro-2-butene		83.0	68.6	135.4
Dibromochloromethane		106.1	74.6	127.2
1,2-Dibromoethane		103.7	70.3	133.7
Chlorobenzene		105.5	79.2	122.7
1,1,1,2-Tetrachloroethane		108.4	80.3	128.2
Ethylbenzene		105.1	79.5	129.1
p,m-Xylene		107.1	79.4	132.2
o-Xylene		107.0	80.2	131.0
Styrene		104.2	69.5	126.7
Isopropylbenzene		106.9	74.4	121.5
Bromoform		105.1	69.4	128.0
1,1,2,2-Tetrachloroethane		102.0	79.8	126.3
1,2,3-Trichloropropane		105.3	78.3	138.8
n-Propylbenzene		107.0	82.0	130.7
Bromobenzene		106.7	78.7	124.6
1,3,5-Trimethylbenzene		106.4	81.3	128.9
tert-Butylbenzene		107.9	80.7	128.9
1,2,4-Trimethylbenzene		107.4	81.4	130.8
sec-Butylbenzene		106.9	77.4	129.8
p-Isopropyltoluene		107.9	79.8	137.5
1,3-Dichlorobenzene		106.6	77.0	131.3
1,4-Dichlorobenzene		106.1	20.7	137.7
1,2-Dichlorobenzene		106.5	10.0	166.2
1,2,3-Trimethylbenzene		106.3	76.3	124.2
n-Butylbenzene		105.3	80.0	133.3
Hexachloroethane		111.6	23.8	138.1
1,2-Dibromo-3-chloropropane		104.6	21.2	189.4
1,2,4-Trichlorobenzene		110.4	27.4	143.4
1,2,3-Trichlorobenzene		112.0	75.4	131.4
Naphthalene		112.3	32.9	135.8

Organics - Volatiles, Prep Batch ID: VF240520W4 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 240520B3.LCSW20B

Run in Batch: 240520B3, Run Date: 05/21/2024 00:27, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
2-Methylnaphthalene		111.6	25.5	165.5

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240520B3.LCSDW20B, Parent Sample ID: 240520B3.LCSW20B

Run in Batch: 240520B3, Run Date: 05/21/2024 00:50, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Diethyl ether		108.8	67.4	121.2	0.6	30.0
Acetone		107.9	29.9	161.5	4.5	30.0
Methyl iodide		112.7	68.8	116.4	3.8	30.0
Carbon disulfide		102.6	63.8	137.4	6.4	30.0
tert-Methyl butyl ether (MTBE)		114.7	73.2	122.4	0.2	30.0
Acrylonitrile		107.2	69.9	128.9	2.5	30.0
2-Butanone (MEK)		94.5	44.0	134.4	9.6	30.0
Dichlorodifluoromethane		102.9	10.0	222.8	8.4	30.0
Chloromethane		100.0	23.8	166.5	6.6	30.0
Vinyl chloride		103.8	43.5	149.1	7.6	30.0
Bromomethane		109.0	56.8	151.3	4.8	30.0
Chloroethane		108.6	53.4	149.4	1.8	30.0
Trichlorofluoromethane		109.2	59.7	151.8	4.1	30.0
1,1-Dichloroethene		106.4	69.6	139.4	2.4	30.0
Methylene chloride		108.9	73.3	121.1	1.1	30.0
trans-1,2-Dichloroethene		106.2	73.6	129.3	4.9	30.0
1,1-Dichloroethane		110.1	71.5	126.2	3.5	30.0
cis-1,2-Dichloroethene		109.2	76.6	122.1	3.1	30.0
Tetrahydrofuran		94.7	59.0	117.9	7.7	30.0
Chloroform		107.5	78.4	124.0	2.6	30.0
Bromochloromethane		112.8	78.2	120.8	1.0	30.0
1,1,1-Trichloroethane		109.2	79.4	130.9	6.4	30.0
4-Methyl-2-pentanone (MIBK)		99.6	71.6	125.2	0.2	30.0
2-Hexanone		98.2	55.4	136.9	1.8	30.0
Carbon tetrachloride		103.2	72.6	133.0	3.7	30.0
Benzene		100.2	79.9	124.9	2.2	30.0
1,2-Dichloroethane		104.9	76.0	126.3	3.3	30.0
Trichloroethene		100.4	79.7	124.2	1.6	30.0
1,2-Dichloropropane		99.1	78.6	126.4	0.2	30.0
Bromodichloromethane		107.2	80.4	128.2	2.3	30.0
Dibromomethane		104.6	76.9	122.1	1.2	30.0
cis-1,3-Dichloropropene		101.7	79.8	129.9	0.4	30.0
Toluene		102.0	79.8	124.5	2.6	30.0
trans-1,3-Dichloropropene		103.7	74.0	131.3	2.6	30.0
1,1,2-Trichloroethane		104.3	78.7	123.1	1.3	30.0
Tetrachloroethene		100.0	74.5	124.5	4.0	30.0
trans-1,4-Dichloro-2-butene		83.7	68.6	135.4	0.8	30.0
Dibromochloromethane		106.7	74.6	127.2	0.5	30.0
1,2-Dibromoethane		103.5	70.3	133.7	0.1	30.0
Chlorobenzene		103.7	79.2	122.7	1.7	30.0

Organics - Volatiles, Prep Batch ID: VF240520W4 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: 240520B3.LCSDW20B, Parent Sample ID: 240520B3.LCSW20B

Run in Batch: 240520B3, Run Date: 05/21/2024 00:50, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,1,1,2-Tetrachloroethane		106.5	80.3	128.2	1.8	30.0
Ethylbenzene		101.8	79.5	129.1	3.2	30.0
p,m-Xylene		104.0	79.4	132.2	2.9	30.0
o-Xylene		105.4	80.2	131.0	1.5	30.0
Styrene		104.2	69.5	126.7	0.0	30.0
Isopropylbenzene		103.2	74.4	121.5	3.5	30.0
Bromoform		106.9	69.4	128.0	1.7	30.0
1,1,2,2-Tetrachloroethane		103.7	79.8	126.3	1.7	30.0
1,2,3-Trichloropropane		105.6	78.3	138.8	0.3	30.0
n-Propylbenzene		102.9	82.0	130.7	3.8	30.0
Bromobenzene		106.6	78.7	124.6	0.1	30.0
1,3,5-Trimethylbenzene		103.3	81.3	128.9	2.9	30.0
tert-Butylbenzene		103.5	80.7	128.9	4.2	30.0
1,2,4-Trimethylbenzene		105.4	81.4	130.8	1.8	30.0
sec-Butylbenzene		103.1	77.4	129.8	3.6	30.0
p-Isopropyltoluene		103.8	79.8	137.5	3.8	30.0
1,3-Dichlorobenzene		105.5	77.0	131.3	1.0	30.0
1,4-Dichlorobenzene		105.2	20.7	137.7	0.8	30.0
1,2-Dichlorobenzene		107.0	10.0	166.2	0.5	30.0
1,2,3-Trimethylbenzene		104.9	76.3	124.2	1.3	30.0
n-Butylbenzene		102.0	80.0	133.3	3.2	30.0
Hexachloroethane		107.5	23.8	138.1	3.8	30.0
1,2-Dibromo-3-chloropropane		103.8	21.2	189.4	0.7	30.0
1,2,4-Trichlorobenzene		111.7	27.4	143.4	1.2	30.0
1,2,3-Trichlorobenzene		112.7	75.4	131.4	0.6	30.0
Naphthalene		112.3	32.9	135.8	0.0	30.0
2-Methylnaphthalene		113.0	25.5	165.5	1.3	30.0

Organics - Volatiles, Prep Batch ID: VF240521W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240521A9.BLKW21A

Run in Batch: 240521A9, Run Date: 05/21/2024 15:08, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Diethyl ether		ND	1.00	ug/l
Acetone		ND	10.00	ug/l
Methyl iodide		ND	1.00	ug/l
Carbon disulfide		ND	1.00	ug/l
tert-Methyl butyl ether (MTBE)		ND	1.00	ug/l
Acrylonitrile		ND	1.00	ug/l
2-Butanone (MEK)		ND	10.00	ug/l
Dichlorodifluoromethane		ND	1.00	ug/l
Chloromethane		ND	1.00	ug/l
Vinyl chloride		ND	1.00	ug/l
Bromomethane		ND	1.00	ug/l
Chloroethane		ND	1.00	ug/l
Trichlorofluoromethane		ND	1.00	ug/l
1,1-Dichloroethene		ND	1.00	ug/l
Methylene chloride		ND	1.00	ug/l
trans-1,2-Dichloroethene		ND	1.00	ug/l
1,1-Dichloroethane		ND	1.00	ug/l
cis-1,2-Dichloroethene		ND	1.00	ug/l
Tetrahydrofuran		ND	10.00	ug/l
Chloroform		ND	1.00	ug/l
Bromochloromethane		ND	1.00	ug/l
1,1,1-Trichloroethane		ND	1.00	ug/l
4-Methyl-2-pentanone (MIBK)		ND	10.00	ug/l
2-Hexanone		ND	10.00	ug/l
Carbon tetrachloride		ND	1.00	ug/l
Benzene		ND	1.00	ug/l
1,2-Dichloroethane		ND	1.00	ug/l
Trichloroethene		ND	1.00	ug/l
1,2-Dichloropropane		ND	1.00	ug/l
Bromodichloromethane		ND	1.00	ug/l
Dibromomethane		ND	1.00	ug/l
cis-1,3-Dichloropropene		ND	1.00	ug/l
Toluene		ND	1.00	ug/l
trans-1,3-Dichloropropene		ND	1.00	ug/l
1,1,2-Trichloroethane		ND	1.00	ug/l
Tetrachloroethene		ND	1.00	ug/l
trans-1,4-Dichloro-2-butene		ND	1.00	ug/l
Dibromochloromethane		ND	1.00	ug/l
1,2-Dibromoethane		ND	1.00	ug/l
Chlorobenzene		ND	1.00	ug/l
1,1,1,2-Tetrachloroethane		ND	1.00	ug/l
Ethylbenzene		ND	1.00	ug/l
p,m-Xylene		ND	2.00	ug/l
o-Xylene		ND	1.00	ug/l
Styrene		ND	1.00	ug/l
Isopropylbenzene		ND	1.00	ug/l

Organics - Volatiles, Prep Batch ID: VF240521W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK) (continued)

Lab Sample ID: 240521A9.BLKW21A

Run in Batch: 240521A9, Run Date: 05/21/2024 15:08, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Bromoform		ND	1.00	ug/l
1,1,2,2-Tetrachloroethane		ND	1.00	ug/l
1,2,3-Trichloropropane		ND	1.00	ug/l
n-Propylbenzene		ND	1.00	ug/l
Bromobenzene		ND	1.00	ug/l
1,3,5-Trimethylbenzene		ND	1.00	ug/l
tert-Butylbenzene		ND	1.00	ug/l
1,2,4-Trimethylbenzene		ND	1.00	ug/l
sec-Butylbenzene		ND	1.00	ug/l
p-Isopropyltoluene		ND	1.00	ug/l
1,3-Dichlorobenzene		ND	1.00	ug/l
1,4-Dichlorobenzene		ND	1.00	ug/l
1,2-Dichlorobenzene		ND	1.00	ug/l
1,2,3-Trimethylbenzene		ND	1.00	ug/l
n-Butylbenzene		ND	1.00	ug/l
Hexachloroethane		ND	1.00	ug/l
1,2-Dibromo-3-chloropropane		ND	1.00	ug/l
1,2,4-Trichlorobenzene		ND	1.00	ug/l
1,2,3-Trichlorobenzene		ND	1.00	ug/l
Naphthalene		ND	1.00	ug/l
2-Methylnaphthalene		ND	1.00	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 240521A9.LCSW21A

Run in Batch: 240521A9, Run Date: 05/21/2024 13:32, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Diethyl ether		86.8	67.4	121.2
Acetone		77.5	29.9	161.5
Methyl iodide		94.6	68.8	116.4
Carbon disulfide		82.9	63.8	137.4
tert-Methyl butyl ether (MTBE)		93.2	73.2	122.4
Acrylonitrile		83.7	69.9	128.9
2-Butanone (MEK)		93.9	44.0	134.4
Dichlorodifluoromethane		85.1	10.0	222.8
Chloromethane		88.9	23.8	166.5
Vinyl chloride		93.5	43.5	149.1
Bromomethane		95.8	56.8	151.3
Chloroethane		93.9	53.4	149.4
Trichlorofluoromethane		93.0	59.7	151.8
1,1-Dichloroethene		82.5	69.6	139.4
Methylene chloride		86.3	73.3	121.1
trans-1,2-Dichloroethene		83.8	73.6	129.3
1,1-Dichloroethane		84.2	71.5	126.2
cis-1,2-Dichloroethene		91.5	76.6	122.1
Tetrahydrofuran		76.8	59.0	117.9
Chloroform		85.4	78.4	124.0

Organics - Volatiles, Prep Batch ID: VF240521W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 240521A9.LCSW21A

Run in Batch: 240521A9, Run Date: 05/21/2024 13:32, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Bromochloromethane		95.6	78.2	120.8
1,1,1-Trichloroethane		87.2	79.4	130.9
4-Methyl-2-pentanone (MIBK)		99.8	71.6	125.2
2-Hexanone		97.7	55.4	136.9
Carbon tetrachloride		95.2	72.6	133.0
Benzene		92.3	79.9	124.9
1,2-Dichloroethane		86.5	76.0	126.3
Trichloroethene		95.7	79.7	124.2
1,2-Dichloropropane		90.2	78.6	126.4
Bromodichloromethane		94.2	80.4	128.2
Dibromomethane		105.7	76.9	122.1
cis-1,3-Dichloropropene		95.3	79.8	129.9
Toluene		93.1	79.8	124.5
trans-1,3-Dichloropropene		95.9	74.0	131.3
1,1,2-Trichloroethane		93.7	78.7	123.1
Tetrachloroethene		102.9	74.5	124.5
trans-1,4-Dichloro-2-butene		101.7	68.6	135.4
Dibromochloromethane		108.2	74.6	127.2
1,2-Dibromoethane		104.7	70.3	133.7
Chlorobenzene		102.0	79.2	122.7
1,1,1,2-Tetrachloroethane		105.4	80.3	128.2
Ethylbenzene		101.1	79.5	129.1
p,m-Xylene		103.7	79.4	132.2
o-Xylene		99.3	80.2	131.0
Styrene		101.9	69.5	126.7
Isopropylbenzene		104.6	74.4	121.5
Bromoform		111.2	69.4	128.0
1,1,2,2-Tetrachloroethane		102.9	79.8	126.3
1,2,3-Trichloropropane		101.3	78.3	138.8
n-Propylbenzene		102.9	82.0	130.7
Bromobenzene		105.6	78.7	124.6
1,3,5-Trimethylbenzene		106.8	81.3	128.9
tert-Butylbenzene		99.8	80.7	128.9
1,2,4-Trimethylbenzene		105.9	81.4	130.8
sec-Butylbenzene		98.9	77.4	129.8
p-Isopropyltoluene		100.3	79.8	137.5
1,3-Dichlorobenzene		98.9	77.0	131.3
1,4-Dichlorobenzene		101.5	20.7	137.7
1,2-Dichlorobenzene		102.1	10.0	166.2
1,2,3-Trimethylbenzene		105.5	76.3	124.2
n-Butylbenzene		99.3	80.0	133.3
Hexachloroethane		115.1	23.8	138.1
1,2-Dibromo-3-chloropropane		105.5	21.2	189.4
1,2,4-Trichlorobenzene		108.7	27.4	143.4
1,2,3-Trichlorobenzene		111.5	75.4	131.4
Naphthalene		108.7	32.9	135.8

Organics - Volatiles, Prep Batch ID: VF240521W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 240521A9.LCSW21A

Run in Batch: 240521A9, Run Date: 05/21/2024 13:32, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
2-Methylnaphthalene		106.1	25.5	165.5

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240521A9.LCSDW21A, Parent Sample ID: 240521A9.LCSW21A

Run in Batch: 240521A9, Run Date: 05/21/2024 13:56, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Diethyl ether		84.6	67.4	121.2	2.6	30.0
Acetone		76.5	29.9	161.5	1.3	30.0
Methyl iodide		91.6	68.8	116.4	3.2	30.0
Carbon disulfide		79.3	63.8	137.4	4.4	30.0
tert-Methyl butyl ether (MTBE)		91.0	73.2	122.4	2.4	30.0
Acrylonitrile		83.4	69.9	128.9	0.4	30.0
2-Butanone (MEK)		90.4	44.0	134.4	3.9	30.0
Dichlorodifluoromethane		82.7	10.0	222.8	2.8	30.0
Chloromethane		87.4	23.8	166.5	1.8	30.0
Vinyl chloride		90.5	43.5	149.1	3.2	30.0
Bromomethane		94.0	56.8	151.3	1.9	30.0
Chloroethane		92.1	53.4	149.4	1.9	30.0
Trichlorofluoromethane		90.2	59.7	151.8	3.1	30.0
1,1-Dichloroethene		79.1	69.6	139.4	4.2	30.0
Methylene chloride		84.2	73.3	121.1	2.4	30.0
trans-1,2-Dichloroethene		81.1	73.6	129.3	3.2	30.0
1,1-Dichloroethane		81.7	71.5	126.2	3.1	30.0
cis-1,2-Dichloroethene		87.9	76.6	122.1	4.0	30.0
Tetrahydrofuran		77.9	59.0	117.9	1.4	30.0
Chloroform		83.5	78.4	124.0	2.2	30.0
Bromochloromethane		92.9	78.2	120.8	2.8	30.0
1,1,1-Trichloroethane		84.8	79.4	130.9	2.8	30.0
4-Methyl-2-pentanone (MIBK)		95.8	71.6	125.2	4.1	30.0
2-Hexanone		95.3	55.4	136.9	2.5	30.0
Carbon tetrachloride		90.7	72.6	133.0	4.8	30.0
Benzene		87.6	79.9	124.9	5.3	30.0
1,2-Dichloroethane		84.0	76.0	126.3	2.8	30.0
Trichloroethene		91.3	79.7	124.2	4.6	30.0
1,2-Dichloropropane		87.3	78.6	126.4	3.2	30.0
Bromodichloromethane		90.8	80.4	128.2	3.6	30.0
Dibromomethane		101.8	76.9	122.1	3.7	30.0
cis-1,3-Dichloropropene		92.5	79.8	129.9	3.0	30.0
Toluene		90.5	79.8	124.5	2.9	30.0
trans-1,3-Dichloropropene		92.3	74.0	131.3	3.8	30.0
1,1,2-Trichloroethane		90.6	78.7	123.1	3.5	30.0
Tetrachloroethene		96.6	74.5	124.5	6.3	30.0
trans-1,4-Dichloro-2-butene		100.9	68.6	135.4	0.8	30.0
Dibromochloromethane		103.9	74.6	127.2	4.1	30.0
1,2-Dibromoethane		99.5	70.3	133.7	5.1	30.0
Chlorobenzene		98.8	79.2	122.7	3.2	30.0

Organics - Volatiles, Prep Batch ID: VF240521W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: 240521A9.LCSDW21A, Parent Sample ID: 240521A9.LCSW21A

Run in Batch: 240521A9, Run Date: 05/21/2024 13:56, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,1,1,2-Tetrachloroethane		102.2	80.3	128.2	3.2	30.0
Ethylbenzene		97.4	79.5	129.1	3.7	30.0
p,m-Xylene		98.4	79.4	132.2	5.2	30.0
o-Xylene		96.2	80.2	131.0	3.2	30.0
Styrene		98.2	69.5	126.7	3.7	30.0
Isopropylbenzene		99.7	74.4	121.5	4.8	30.0
Bromoform		107.3	69.4	128.0	3.5	30.0
1,1,2,2-Tetrachloroethane		99.3	79.8	126.3	3.6	30.0
1,2,3-Trichloropropane		99.8	78.3	138.8	1.6	30.0
n-Propylbenzene		99.0	82.0	130.7	3.9	30.0
Bromobenzene		103.8	78.7	124.6	1.7	30.0
1,3,5-Trimethylbenzene		102.3	81.3	128.9	4.2	30.0
tert-Butylbenzene		96.2	80.7	128.9	3.7	30.0
1,2,4-Trimethylbenzene		101.7	81.4	130.8	4.0	30.0
sec-Butylbenzene		95.8	77.4	129.8	3.2	30.0
p-Isopropyltoluene		96.3	79.8	137.5	4.0	30.0
1,3-Dichlorobenzene		96.6	77.0	131.3	2.3	30.0
1,4-Dichlorobenzene		97.5	20.7	137.7	4.0	30.0
1,2-Dichlorobenzene		98.3	10.0	166.2	3.8	30.0
1,2,3-Trimethylbenzene		102.5	76.3	124.2	2.9	30.0
n-Butylbenzene		95.4	80.0	133.3	3.9	30.0
Hexachloroethane		110.8	23.8	138.1	3.8	30.0
1,2-Dibromo-3-chloropropane		102.0	21.2	189.4	3.4	30.0
1,2,4-Trichlorobenzene		106.4	27.4	143.4	2.1	30.0
1,2,3-Trichlorobenzene		108.2	75.4	131.4	2.9	30.0
Naphthalene		108.1	32.9	135.8	0.5	30.0
2-Methylnaphthalene		108.8	25.5	165.5	2.5	30.0

Organics - Volatiles, Prep Batch ID: VS240520W3

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: K240520B.BLK20B

Run in Batch: K240520B, Run Date: 05/21/2024 02:36, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
1,4-Dioxane		ND	0.02	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: K240520B.LCS20B

Run in Batch: K240520B, Run Date: 05/21/2024 00:58, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		100.6	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: K240520B.LCSD20B, Parent Sample ID: K240520B.LCS20B

Run in Batch: K240520B, Run Date: 05/21/2024 01:23, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		108.9	70.0	130.0	7.9	30.0

Merit Laboratories Login Checklist

Lab Set ID: S62233
Client: ARCADIS_NOVI (ARCADIS U.S., Inc.)
Project: 30214036.0470A / RACER Lansing GWS
Submitted: 05/17/2024 13:15 Login User: MMC

Attention: Kaitlyn Hunt
Address: Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 5.8
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[ ] Yes	[X] No	[ ] N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	[X] Yes	[ ] No	[ ] N/A	Do sample have correct chemical preservation	
11.	[ ] Yes	[ ] No	[X] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[ ] Yes	[X] No	[ ] N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[ ] Yes	[X] No	[ ] N/A	Samples require laboratory filtration	
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[X] No	[ ] N/A	Do water VOC or TOX bottles contain headspace	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Plant 2

Merit Laboratories, Inc.
2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 4

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Tiffany Linder, Kaitlyn Hunt
COMPANY: Arcadis
ADDRESS: 28550 Cabot Drive, STE 500
CITY: Novi | STATE: MI | ZIP CODE: 48377
PHONE NO.: 947-777-5215 | FAX NO.:
P.O. NO.: US3460016166
E-MAIL ADDRESS: kaitlyn.hunt@arcadis.com | QUOTE NO.:

INVOICE TO

CONTACT NAME: ☒ SAME
COMPANY:
ADDRESS:
CITY: | STATE: | ZIP CODE:
PHONE NO.: | E-MAIL ADDRESS: tiffany.linder@arcadis.com

PROJECT NO./NAME: 30214036.0470A / RACER Lansing GWS
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Jackie Schotte

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☒ EDD ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐ OHIO VAP ☐ Drinking Water ☐ DoD ☐ NPDES
Project Locations: ☐ Detroit ☐ New York ☐ Other
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	1,4-Dioxane - 8260 SIMS	VOC - 8260 SIMS	SVOC-8270 SIMS	Select Total Metals	Select Diss. Metals	Hex Chromium	Special Instructions
5/16/24	[illegible]	[illegible]	[illegible]	GW	5	2	3						X	X	X				Select Metals include As, Ni, Pb, V, Cr, Cu
62233.01	5/16/24	1055	MW-12-09_051624	GW	3		3						X	X					
.02	5/16/24	1240	MW-12-18_051624	GW	3		3						O	X					
.03	5/16/24	1325	MW-14-54_051624	GW	3		3							X					
.04	5/16/24	1545	MW-14-55_051624	GW	3		3							X					
.05	5/17/24	0945	MW-14-59_051724	GW	5	2	3						X	X	X				
.06	5/17/24	1140	MW-14-60_051724	GW	5	2	3						X	X	X				
.07	5/16/24		DUP-01_051624	GW	3		3						X	X					

RELINQUISHED BY: SIGNATURE/ORGANIZATION	Sampler	DATE 5/17/24	TIME 1230
RECEIVED BY: SIGNATURE/ORGANIZATION	Ellen Redner / Arcadis	DATE 5/17/24	TIME 1230
RELINQUISHED BY: SIGNATURE/ORGANIZATION	Arcadis	DATE 5/17/24	TIME 1315
RECEIVED BY: SIGNATURE/ORGANIZATION	Merit Labs	DATE 5/17/24	TIME 1315
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

SEAL NO. | SEAL INTACT YES☐ NO☐ | INITIALS
SEAL NO. | SEAL INTACT YES☐ NO☐ | INITIALS

NOTES: TEMP. ON ARRIVAL 5.8

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

Plant 2

Merit Laboratories, Inc.

2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 2 OF 4

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Tiffany Linder, Kaitlyn Hunt
COMPANY: Arcadis
ADDRESS: 28550 Cabot Drive, STE 500
CITY: Novi | STATE: MI | ZIP CODE: 48377
PHONE NO.: 947-777-5215 | FAX NO.:
P.O. NO.: US3460016166
E-MAIL ADDRESS: kaitlyn.hunt@arcadis.com | QUOTE NO.:

INVOICE TO

CONTACT NAME: ☒ SAME
COMPANY:
ADDRESS:
CITY: | STATE: | ZIP CODE:
PHONE NO.: | E-MAIL ADDRESS: tiffany.linder@arcadis.com

PROJECT NO./NAME: 30214036.0470A / RACER Lansing GWS
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Ellen Rosner/ER

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☒ EDD ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐ OHIO VAP ☐ Drinking Water ☐ DoD ☐ NPDES
Project Locations: ☐ Detroit ☐ New York ☐ Other
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	1,4-Dioxane - 8260 SIMS	VOC - 8260 SIMS (3)	SVOC-8270 SIMS (2)	Select Total Metals	Select Diss. Metals	Hex Chromium	Special Instructions
.08/.09/.10	5/16/24	1400	P2-MW-04_051624	GW	15	6	9							9	6				Select Metals include As, Ni, Pb, V, Cr, Cu MS/MSD
62233.11	↓	1620	MW-21-139_051624	GW	3		3							3					
.12	5/17/24	0955	MW-14-57_051724	GW	3		3						3						
.13	↓	1140	MW-01(2)_051724	GW	3		3							3					

ER 5/17/24

RELINQUISHED BY: SIGNATURE/ORGANIZATION	ER/Arcadis ☐ Sampler	DATE 5/17/24	TIME 1640
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

RELINQUISHED BY: SIGNATURE/ORGANIZATION	ER/Arcadis	DATE 5/17/24	TIME 1315
RECEIVED BY: SIGNATURE/ORGANIZATION	M Clilcott	DATE 5/17/24	TIME 1315

SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	NOTES: TEMP. ON ARRIVAL 5.8
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev: 5.18.12

Plant 2

Merit Laboratories, Inc.
2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Tiffany Linder, Kaitlyn Hunt
COMPANY: Arcadis
ADDRESS: 28550 Cabot Drive, STE 500
CITY: Novi | STATE: MI | ZIP CODE: 48377
PHONE NO.: 947-777-5215 | FAX NO.: | P.O. NO.: US3460016166
E-MAIL ADDRESS: kaitlyn.hunt@arcadis.com | QUOTE NO.:

INVOICE TO

CONTACT NAME: ☒ SAME
COMPANY:
ADDRESS:
CITY: | STATE: | ZIP CODE:
PHONE NO.: | E-MAIL ADDRESS: tiffany.linder@arcadis.com

PROJECT NO./NAME: 30214036.0470A / RACER Lansing GWS
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Billy J. Cobean

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☒ EDD ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐ OHIO VAP ☐ Drinking Water ☐ DoD ☐ NPDES
Project Locations: ☐ Detroit ☐ New York ☐ Other
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	1,4-Dioxane - 8260 SIMS	VOC - 8260 SIMS	SVOC-8270 SIMS	Select Total Metals	Select Diss. Metals	Hex Chromium	Special Instructions
62233.14	5/16/24	1145	MW-21-140_051624	GW	3		3						X						Select Metals include As, Ni, Pb, V, Cr, Cu
.15	5/16/24	1250	MW-16-85_051624	GW	3		3						X	X					
.16	5/16/24	1420	MW-16-76_051624	GW	3		3						X	X					
.17	5/16/24	1550	MW-14-63_051624	GW	3		3						X						
.18																			

RELINQUISHED BY: SIGNATURE/ORGANIZATION	☒ Sampler	DATE 5-17-24	TIME 1230
RECEIVED BY: SIGNATURE/ORGANIZATION	Arcadis	DATE 5/17/24	TIME 1230
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

RELINQUISHED BY: SIGNATURE/ORGANIZATION	Arcadis	DATE 5/17/24	TIME 1315
RECEIVED BY: SIGNATURE/ORGANIZATION	Chilcote	DATE 5/17/24	TIME 1315
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	NOTES: TEMP. ON ARRIVAL 5.8
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

Analytical Laboratory Report

Report ID: S62234.01(01)+QC01
Generated on 05/22/2024

Report to

Attention: Kaitlyn Hunt
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 C:947-777-5215 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Addtional Contacts: Marina Samp, Tiffany Linder

Report produced by

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Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S62234.01-S62234.10
Project: 30214036.0470B / RACER Lansing GWS
Collected Date(s): 05/16/2024 - 05/17/2024
Submitted Date/Time: 05/17/2024 13:15
Sampled by: Donald Richmond
P.O. #: US3460016187

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Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Starred (*) analytes are not NY NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.
Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.
All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.
For a specific list of accredited analytes, please feel free to contact the laboratory or visit https://www.meritlabs.com/certifications.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
o	Associated EIS outside of control limits
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
q	Qualifier ion ratio outside of control limits
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
N/A	Not Applicable
SW5030C/8260C	SW 846 Method 8260C Revision 3 August 2006 / 5030C Revision 3 May 2003
SW8260B - SIM	SW 846 Method 8260B Revision 2 December 1996 SIMs

Sample Summary (10 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S62234.01	MW-13-48_051624	Groundwater	05/16/24 11:05
S62234.02	MW-13-34_051624	Groundwater	05/16/24 12:30
S62234.03	MW-13-22_051624	Groundwater	05/16/24 14:20
S62234.04	MW-12-21_051624	Groundwater	05/16/24 15:05
S62234.05	MW-13-29_051624	Groundwater	05/16/24 16:35
S62234.06	TW-15-11_051724	Groundwater	05/17/24 10:00
S62234.07	AS-19-A06_051724	Groundwater	05/17/24 09:55
S62234.08	PW-14-03R_051724	Groundwater	05/17/24 11:30
S62234.09	AS-19-A05_051724	Groundwater	05/17/24 11:25
S62234.10	DUP-07_051624	Groundwater	05/16/24 00:01

Lab Sample ID: S62234.01
Sample Tag: MW-13-48_051624
Collected Date/Time: 05/16/2024 11:05
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/21/24 11:20	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/21/24 19:47, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	86	1		ug/L	1	123-91-1	

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/21/24 07:49, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	

Lab Sample ID: S62234.01 (continued)
Sample Tag: MW-13-48_051624

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/21/24 07:49, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Lab Sample ID: S62234.02
Sample Tag: MW-13-34_051624
Collected Date/Time: 05/16/2024 12:30
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/21/24 11:20	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/21/24 20:11, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	114	1		ug/L	1	123-91-1	

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/21/24 08:13, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	

Lab Sample ID: S62234.02 (continued)
Sample Tag: MW-13-34_051624

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/21/24 08:13, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Lab Sample ID: S62234.03
Sample Tag: MW-13-22_051624
Collected Date/Time: 05/16/2024 14:20
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/21/24 11:20	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/21/24 20:36, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	124	1		ug/L	1	123-91-1	

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/21/24 08:36, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	

Lab Sample ID: S62234.03 (continued)
Sample Tag: MW-13-22_051624

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/21/24 08:36, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Lab Sample ID: S62234.04
Sample Tag: MW-12-21_051624
Collected Date/Time: 05/16/2024 15:05
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/21/24 11:20	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/21/24 21:00, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	157	1		ug/L	1	123-91-1	

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/21/24 08:59, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	

Lab Sample ID: S62234.04 (continued)
Sample Tag: MW-12-21_051624

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/21/24 08:59, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Analytical Laboratory Report

Lab Sample ID: S62234.05
Sample Tag: MW-13-29_051624
Collected Date/Time: 05/16/2024 16:35
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/22/24 11:30	BDO	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/21/24 21:25, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	9	1		ug/L	1	123-91-1	

Lab Sample ID: S62234.06
Sample Tag: TW-15-11_051724
Collected Date/Time: 05/17/2024 10:00
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/22/24 11:30	BDO	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/22/24 10:44, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	197	5		ug/L	5	123-91-1	Y

Y-Elevated reporting limit due to high target concentration

Lab Sample ID: S62234.07
Sample Tag: AS-19-A06_051724
Collected Date/Time: 05/17/2024 09:55
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/22/24 11:30	BDO	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/22/24 02:42, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	Not detected	1		ug/L	1	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S62234.08
Sample Tag: PW-14-03R_051724
Collected Date/Time: 05/17/2024 11:30
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/22/24 11:30	BDO	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/22/24 03:07, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	13	1		ug/L	1	123-91-1	

Lab Sample ID: S62234.09
Sample Tag: AS-19-A05_051724
Collected Date/Time: 05/17/2024 11:25
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/22/24 11:30	BDO	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/22/24 03:32, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	5	1		ug/L	1	123-91-1	

Lab Sample ID: S62234.10
Sample Tag: DUP-07_051624
Collected Date/Time: 05/16/2024 00:01
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/21/24 11:20	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/22/24 03:56, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	91	1		ug/L	1	123-91-1	

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/21/24 09:23, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	

Lab Sample ID: S62234.10 (continued)
Sample Tag: DUP-07_051624

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/21/24 09:23, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Quality Control Report

Report ID: S62234.01(01)+QC01
Generated on 05/22/2024

Report to

Attention: Kaitlyn Hunt
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 C:947-777-5215 FAX:

Report Produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S62234.01-S62234.10
Project: 30214036.0470B / RACER Lansing GWS
Submitted Date/Time: 05/17/2024 13:15
Sampled by: Donald Richmond
P.O. #: US3460016187

QC Report Sections

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Analysis Summary (Pages 22-31)
Prep Batch Summary (Page 32)
Surrogates per Lab Sample (Pages 33-37)
Surrogates per QC Sample (Pages 38-40)
Internal Standards per Lab Sample (Pages 41-50)
Internal Standards per QC Sample (Pages 51-53)
Batch QC Results (Pages 54-60)

Report Flag Descriptions

*: QC result is outside of indicated control limits
W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.

Barbara Ball
Quality Assurance Manager

Lab Sample ID: S62234.01
Sample Tag: MW-13-48_051624
Collected Date/Time: 05/16/2024 11:05
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/21/24 19:47	K240521	VD240521W1	Yes	BLK/LCS/LCSD/MS/MS
Volatile Organics - DEQ List	SW5030C/8260C	05/21/24 07:49	240520B3	VF240520W4	Yes	BLK/LCS/LCSD

Lab Sample ID: S62234.02

Sample Tag: MW-13-34_051624

Collected Date/Time: 05/16/2024 12:30

Matrix: Groundwater

COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/21/24 20:11	K240521	VD240521W1	Yes	BLK/LCS/LCSD/MS/MS
Volatile Organics - DEQ List	SW5030C/8260C	05/21/24 08:13	240520B3	VF240520W4	Yes	BLK/LCS/LCSD

Lab Sample ID: S62234.03

Sample Tag: MW-13-22_051624

Collected Date/Time: 05/16/2024 14:20

Matrix: Groundwater

COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/21/24 20:36	K240521	VD240521W1	Yes	BLK/LCS/LCSD/MS/MS
Volatile Organics - DEQ List	SW5030C/8260C	05/21/24 08:36	240520B3	VF240520W4	Yes	BLK/LCS/LCSD

Lab Sample ID: S62234.04

Sample Tag: MW-12-21_051624

Collected Date/Time: 05/16/2024 15:05

Matrix: Groundwater

COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/21/24 21:00	K240521	VD240521W1	Yes	BLK/LCS/LCSD/MS/MS
Volatile Organics - DEQ List	SW5030C/8260C	05/21/24 08:59	240520B3	VF240520W4	Yes	BLK/LCS/LCSD

Lab Sample ID: S62234.05
Sample Tag: MW-13-29_051624
Collected Date/Time: 05/16/2024 16:35
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/21/24 21:25	K240521	VD240521W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S62234.06
Sample Tag: TW-15-11_051724
Collected Date/Time: 05/17/2024 10:00
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/22/24 10:44	K240521B	VD240521W3	Yes	BLK/LCS/LCSD

Lab Sample ID: S62234.07
Sample Tag: AS-19-A06_051724
Collected Date/Time: 05/17/2024 09:55
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/22/24 02:42	K240521B	VD240521W3	Yes	BLK/LCS/LCSD

Lab Sample ID: S62234.08
Sample Tag: PW-14-03R_051724
Collected Date/Time: 05/17/2024 11:30
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/22/24 03:07	K240521B	VD240521W3	Yes	BLK/LCS/LCSD

Lab Sample ID: S62234.09
Sample Tag: AS-19-A05_051724
Collected Date/Time: 05/17/2024 11:25
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/22/24 03:32	K240521B	VD240521W3	Yes	BLK/LCS/LCSD

Lab Sample ID: S62234.10

Sample Tag: DUP-07_051624

Collected Date/Time: 05/16/2024 00:01

Matrix: Groundwater

COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/22/24 03:56	K240521B	VD240521W3	Yes	BLK/LCS/LCSD
Volatile Organics - DEQ List	SW5030C/8260C	05/21/24 09:23	240520B3	VF240520W4	Yes	BLK/LCS/LCSD

QC Report - Prep Batch Summary

Organics - Volatiles, Prep Batch ID: VD240521W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S62234.01	1,4-Dioxane	SW8260B - SIM	05/21/24 19:47	K240521
S62234.02	1,4-Dioxane	SW8260B - SIM	05/21/24 20:11	K240521
S62234.03	1,4-Dioxane	SW8260B - SIM	05/21/24 20:36	K240521
S62234.04	1,4-Dioxane	SW8260B - SIM	05/21/24 21:00	K240521
S62234.05	1,4-Dioxane	SW8260B - SIM	05/21/24 21:25	K240521

Organics - Volatiles, Prep Batch ID: VD240521W3

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S62234.06	1,4-Dioxane	SW8260B - SIM	05/22/24 10:44	K240521B
S62234.07	1,4-Dioxane	SW8260B - SIM	05/22/24 02:42	K240521B
S62234.08	1,4-Dioxane	SW8260B - SIM	05/22/24 03:07	K240521B
S62234.09	1,4-Dioxane	SW8260B - SIM	05/22/24 03:32	K240521B
S62234.10	1,4-Dioxane	SW8260B - SIM	05/22/24 03:56	K240521B

Organics - Volatiles, Prep Batch ID: VF240520W4

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S62234.01	Volatile Organics - DEQ List	SW5030C/8260C	05/21/24 07:49	240520B3
S62234.02	Volatile Organics - DEQ List	SW5030C/8260C	05/21/24 08:13	240520B3
S62234.03	Volatile Organics - DEQ List	SW5030C/8260C	05/21/24 08:36	240520B3
S62234.04	Volatile Organics - DEQ List	SW5030C/8260C	05/21/24 08:59	240520B3
S62234.10	Volatile Organics - DEQ List	SW5030C/8260C	05/21/24 09:23	240520B3

QC Report - Surrogates per Lab Sample

Lab Sample ID: S62234.01

Sample Tag: MW-13-48_051624

Collected Date/Time: 05/16/2024 11:05

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240520B3, Run Date: 05/21/2024 07:49, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**101.0**	80.0	124.0
1,2-Dichloroethane-D4		**103.1**	72.0	125.0
Toluene-D8		**99.5**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S62234.02

Sample Tag: MW-13-34_051624

Collected Date/Time: 05/16/2024 12:30

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240520B3, Run Date: 05/21/2024 08:13, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**100.0**	80.0	124.0
1,2-Dichloroethane-D4		**100.9**	72.0	125.0
Toluene-D8		**99.2**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S62234.03

Sample Tag: MW-13-22_051624

Collected Date/Time: 05/16/2024 14:20

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240520B3, Run Date: 05/21/2024 08:36, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**100.7**	80.0	124.0
1,2-Dichloroethane-D4		**101.9**	72.0	125.0
Toluene-D8		**100.0**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S62234.04

Sample Tag: MW-12-21_051624

Collected Date/Time: 05/16/2024 15:05

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240520B3, Run Date: 05/21/2024 08:59, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**99.7**	80.0	124.0
1,2-Dichloroethane-D4		**97.4**	72.0	125.0
Toluene-D8		**99.1**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S62234.10

Sample Tag: DUP-07_051624

Collected Date/Time: 05/16/2024 00:01

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240520B3, Run Date: 05/21/2024 09:23, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**99.8**	80.0	124.0
1,2-Dichloroethane-D4		**101.4**	72.0	125.0
Toluene-D8		**99.6**	89.0	112.0

Organics - Volatiles, Prep Batch ID: VD240521W1

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: K240521.BLK21A

Run in Batch: K240521, Run Date: 05/21/2024 14:52, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample (LCS)

Lab Sample ID: K240521.LCS21A

Run in Batch: K240521, Run Date: 05/21/2024 13:14, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: K240521.LCSD21A, Parent Sample ID: K240521.LCS21A

Run in Batch: K240521, Run Date: 05/21/2024 13:39, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Matrix Spike (MS)

Lab Sample ID: K240521.6223309M, Parent Sample ID: S62233.08

Run in Batch: K240521, Run Date: 05/21/2024 22:38, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Matrix Spike Duplicate (MSD)

Lab Sample ID: K240521.6223310N, Parent Sample ID: K240521.6223309M

Run in Batch: K240521, Run Date: 05/21/2024 23:03, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Organics - Volatiles, Prep Batch ID: VD240521W3

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: K240521B.BLK21B

Run in Batch: K240521B, Run Date: 05/22/2024 02:18, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample (LCS)

Lab Sample ID: K240521B.LCS21B

Run in Batch: K240521B, Run Date: 05/22/2024 00:40, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: K240521B.LCSD21B, Parent Sample ID: K240521B.LCS21B

Run in Batch: K240521B, Run Date: 05/22/2024 01:04, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Organics - Volatiles, Prep Batch ID: VF240520W4

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240520B3.BLKW20B

Run in Batch: 240520B3, Run Date: 05/21/2024 02:00, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**98.9**	80.0	124.0
1,2-Dichloroethane-D4		**104.2**	72.0	125.0
Toluene-D8		**100.5**	89.0	112.0

Laboratory Control Sample (LCS)

Lab Sample ID: 240520B3.LCSW20B

Run in Batch: 240520B3, Run Date: 05/21/2024 00:27, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**103.1**	80.0	124.0
1,2-Dichloroethane-D4		**110.5**	72.0	125.0
Toluene-D8		**99.9**	89.0	112.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240520B3.LCSDW20B, Parent Sample ID: 240520B3.LCSW20B

Run in Batch: 240520B3, Run Date: 05/21/2024 00:50, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**102.1**	80.0	124.0
1,2-Dichloroethane-D4		**110.0**	72.0	125.0
Toluene-D8		**99.6**	89.0	112.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62234.01

Sample Tag: MW-13-48_051624

Collected Date/Time: 05/16/2024 11:05

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240521, Run Date: 05/21/2024 19:47, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**95.8**	50.0	200.0

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240520B3, Run Date: 05/21/2024 07:49, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**104.1**	50.0	200.0
1,4-Difluorobenzene		**98.7**	50.0	200.0
Chlorobenzene-D5		**99.6**	50.0	200.0
1,4-Dichlorobenzene-D4		**96.4**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62234.02

Sample Tag: MW-13-34_051624

Collected Date/Time: 05/16/2024 12:30

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240521, Run Date: 05/21/2024 20:11, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**88.8**	50.0	200.0

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240520B3, Run Date: 05/21/2024 08:13, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**111.4**	50.0	200.0
1,4-Difluorobenzene		**106.6**	50.0	200.0
Chlorobenzene-D5		**105.7**	50.0	200.0
1,4-Dichlorobenzene-D4		**101.9**	50.0	200.0

Lab Sample ID: S62234.03

Sample Tag: MW-13-22_051624

Collected Date/Time: 05/16/2024 14:20

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240521, Run Date: 05/21/2024 20:36, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**98.5**	50.0	200.0

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240520B3, Run Date: 05/21/2024 08:36, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**108.3**	50.0	200.0
1,4-Difluorobenzene		**102.0**	50.0	200.0
Chlorobenzene-D5		**102.4**	50.0	200.0
1,4-Dichlorobenzene-D4		**100.8**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62234.04

Sample Tag: MW-12-21_051624

Collected Date/Time: 05/16/2024 15:05

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240521, Run Date: 05/21/2024 21:00, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**96.2**	50.0	200.0

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240520B3, Run Date: 05/21/2024 08:59, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**104.4**	50.0	200.0
1,4-Difluorobenzene		**97.8**	50.0	200.0
Chlorobenzene-D5		**97.0**	50.0	200.0
1,4-Dichlorobenzene-D4		**93.8**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62234.05

Sample Tag: MW-13-29_051624

Collected Date/Time: 05/16/2024 16:35

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240521, Run Date: 05/21/2024 21:25, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**86.4**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62234.06

Sample Tag: TW-15-11_051724

Collected Date/Time: 05/17/2024 10:00

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240521B, Run Date: 05/22/2024 10:44, Matrix: WW, Dilution: 5

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**90.7**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62234.07

Sample Tag: AS-19-A06_051724

Collected Date/Time: 05/17/2024 09:55

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240521B, Run Date: 05/22/2024 02:42, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**77.4**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62234.08

Sample Tag: PW-14-03R_051724

Collected Date/Time: 05/17/2024 11:30

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240521B, Run Date: 05/22/2024 03:07, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**77.4**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62234.09

Sample Tag: AS-19-A05_051724

Collected Date/Time: 05/17/2024 11:25

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240521B, Run Date: 05/22/2024 03:32, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**88.1**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62234.10

Sample Tag: DUP-07_051624

Collected Date/Time: 05/16/2024 00:01

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240521B, Run Date: 05/22/2024 03:56, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**87.2**	50.0	200.0

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240520B3, Run Date: 05/21/2024 09:23, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**104.2**	50.0	200.0
1,4-Difluorobenzene		**98.4**	50.0	200.0
Chlorobenzene-D5		**99.1**	50.0	200.0
1,4-Dichlorobenzene-D4		**96.3**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VD240521W1

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: K240521.BLK21A

Run in Batch: K240521, Run Date: 05/21/2024 14:52, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**91.3**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: K240521.LCS21A

Run in Batch: K240521, Run Date: 05/21/2024 13:14, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**88.6**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: K240521.LCSD21A, Parent Sample ID: K240521.LCS21A

Run in Batch: K240521, Run Date: 05/21/2024 13:39, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**93.5**	50.0	200.0

Matrix Spike (MS)

Lab Sample ID: K240521.6223309M, Parent Sample ID: S62233.08

Run in Batch: K240521, Run Date: 05/21/2024 22:38, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**95.5**	50.0	200.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: K240521.6223310N, Parent Sample ID: K240521.6223309M

Run in Batch: K240521, Run Date: 05/21/2024 23:03, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**100.7**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VD240521W3

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: K240521B.BLK21B

Run in Batch: K240521B, Run Date: 05/22/2024 02:18, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**71.4**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: K240521B.LCS21B

Run in Batch: K240521B, Run Date: 05/22/2024 00:40, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**103.0**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: K240521B.LCSD21B, Parent Sample ID: K240521B.LCS21B

Run in Batch: K240521B, Run Date: 05/22/2024 01:04, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**91.3**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VF240520W4

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240520B3.BLKW20B

Run in Batch: 240520B3, Run Date: 05/21/2024 02:00, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**102.8**	50.0	200.0
1,4-Difluorobenzene		**102.3**	50.0	200.0
Chlorobenzene-D5		**101.7**	50.0	200.0
1,4-Dichlorobenzene-D4		**96.8**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 240520B3.LCSW20B

Run in Batch: 240520B3, Run Date: 05/21/2024 00:27, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**101.8**	50.0	200.0
1,4-Difluorobenzene		**104.1**	50.0	200.0
Chlorobenzene-D5		**102.8**	50.0	200.0
1,4-Dichlorobenzene-D4		**102.2**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240520B3.LCSDW20B, Parent Sample ID: 240520B3.LCSW20B

Run in Batch: 240520B3, Run Date: 05/21/2024 00:50, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**103.9**	50.0	200.0
1,4-Difluorobenzene		**104.7**	50.0	200.0
Chlorobenzene-D5		**103.8**	50.0	200.0
1,4-Dichlorobenzene-D4		**103.1**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VD240521W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: K240521.BLK21A

Run in Batch: K240521, Run Date: 05/21/2024 14:52, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
1,4-Dioxane	*	0.0312	0.02	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: K240521.LCS21A

Run in Batch: K240521, Run Date: 05/21/2024 13:14, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		104.0	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: K240521.LCSD21A, Parent Sample ID: K240521.LCS21A

Run in Batch: K240521, Run Date: 05/21/2024 13:39, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		108.1	70.0	130.0	3.8	30.0

Matrix Spike (MS)

Lab Sample ID: K240521.6223309M, Parent Sample ID: S62233.08

Run in Batch: K240521, Run Date: 05/21/2024 22:38, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		85.2	70.0	130.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: K240521.6223310N, Parent Sample ID: K240521.6223309M

Run in Batch: K240521, Run Date: 05/21/2024 23:03, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		113.9	70.0	130.0	18.2	30.0

Organics - Volatiles, Prep Batch ID: VD240521W3

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: K240521B.BLK21B

Run in Batch: K240521B, Run Date: 05/22/2024 02:18, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
1,4-Dioxane		ND	0.02	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: K240521B.LCS21B

Run in Batch: K240521B, Run Date: 05/22/2024 00:40, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		107.6	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: K240521B.LCSD21B, Parent Sample ID: K240521B.LCS21B

Run in Batch: K240521B, Run Date: 05/22/2024 01:04, Prep Date: 05/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		103.2	70.0	130.0	4.2	30.0

Organics - Volatiles, Prep Batch ID: VF240520W4

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240520B3.BLKW20B

Run in Batch: 240520B3, Run Date: 05/21/2024 02:00, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Diethyl ether		ND	1.00	ug/l
Acetone		ND	10.00	ug/l
Methyl iodide		ND	1.00	ug/l
Carbon disulfide		ND	1.00	ug/l
tert-Methyl butyl ether (MTBE)		ND	1.00	ug/l
Acrylonitrile		ND	1.00	ug/l
2-Butanone (MEK)		ND	10.00	ug/l
Dichlorodifluoromethane		ND	1.00	ug/l
Chloromethane		ND	1.00	ug/l
Vinyl chloride		ND	1.00	ug/l
Bromomethane		ND	1.00	ug/l
Chloroethane		ND	1.00	ug/l
Trichlorofluoromethane		ND	1.00	ug/l
1,1-Dichloroethene		ND	1.00	ug/l
Methylene chloride		ND	1.00	ug/l
trans-1,2-Dichloroethene		ND	1.00	ug/l
1,1-Dichloroethane		ND	1.00	ug/l
cis-1,2-Dichloroethene		ND	1.00	ug/l
Tetrahydrofuran		ND	10.00	ug/l
Chloroform		ND	1.00	ug/l
Bromochloromethane		ND	1.00	ug/l
1,1,1-Trichloroethane		ND	1.00	ug/l
4-Methyl-2-pentanone (MIBK)		ND	10.00	ug/l
2-Hexanone		ND	10.00	ug/l
Carbon tetrachloride		ND	1.00	ug/l
Benzene		ND	1.00	ug/l
1,2-Dichloroethane		ND	1.00	ug/l
Trichloroethene		ND	1.00	ug/l
1,2-Dichloropropane		ND	1.00	ug/l
Bromodichloromethane		ND	1.00	ug/l
Dibromomethane		ND	1.00	ug/l
cis-1,3-Dichloropropene		ND	1.00	ug/l
Toluene		ND	1.00	ug/l
trans-1,3-Dichloropropene		ND	1.00	ug/l
1,1,2-Trichloroethane		ND	1.00	ug/l
Tetrachloroethene		ND	1.00	ug/l
trans-1,4-Dichloro-2-butene		ND	1.00	ug/l
Dibromochloromethane		ND	1.00	ug/l
1,2-Dibromoethane		ND	1.00	ug/l
Chlorobenzene		ND	1.00	ug/l
1,1,1,2-Tetrachloroethane		ND	1.00	ug/l
Ethylbenzene		ND	1.00	ug/l
p,m-Xylene		ND	2.00	ug/l
o-Xylene		ND	1.00	ug/l
Styrene		ND	1.00	ug/l
Isopropylbenzene		ND	1.00	ug/l

Organics - Volatiles, Prep Batch ID: VF240520W4 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK) (continued)

Lab Sample ID: 240520B3.BLKW20B

Run in Batch: 240520B3, Run Date: 05/21/2024 02:00, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Bromoform		ND	1.00	ug/l
1,1,2,2-Tetrachloroethane		ND	1.00	ug/l
1,2,3-Trichloropropane		ND	1.00	ug/l
n-Propylbenzene		ND	1.00	ug/l
Bromobenzene		ND	1.00	ug/l
1,3,5-Trimethylbenzene		ND	1.00	ug/l
tert-Butylbenzene		ND	1.00	ug/l
1,2,4-Trimethylbenzene		ND	1.00	ug/l
sec-Butylbenzene		ND	1.00	ug/l
p-Isopropyltoluene		ND	1.00	ug/l
1,3-Dichlorobenzene		ND	1.00	ug/l
1,4-Dichlorobenzene		ND	1.00	ug/l
1,2-Dichlorobenzene		ND	1.00	ug/l
1,2,3-Trimethylbenzene		ND	1.00	ug/l
n-Butylbenzene		ND	1.00	ug/l
Hexachloroethane		ND	1.00	ug/l
1,2-Dibromo-3-chloropropane		ND	1.00	ug/l
1,2,4-Trichlorobenzene		ND	1.00	ug/l
1,2,3-Trichlorobenzene		ND	1.00	ug/l
Naphthalene		ND	1.00	ug/l
2-Methylnaphthalene		ND	1.00	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 240520B3.LCSW20B

Run in Batch: 240520B3, Run Date: 05/21/2024 00:27, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Diethyl ether		109.5	67.4	121.2
Acetone		112.8	29.9	161.5
Methyl iodide	*	117.0	68.8	116.4
Carbon disulfide		109.4	63.8	137.4
tert-Methyl butyl ether (MTBE)		114.5	73.2	122.4
Acrylonitrile		109.9	69.9	128.9
2-Butanone (MEK)		104.1	44.0	134.4
Dichlorodifluoromethane		111.9	10.0	222.8
Chloromethane		106.9	23.8	166.5
Vinyl chloride		112.0	43.5	149.1
Bromomethane		114.4	56.8	151.3
Chloroethane		110.6	53.4	149.4
Trichlorofluoromethane		113.8	59.7	151.8
1,1-Dichloroethene		109.0	69.6	139.4
Methylene chloride		110.1	73.3	121.1
trans-1,2-Dichloroethene		111.6	73.6	129.3
1,1-Dichloroethane		114.0	71.5	126.2
cis-1,2-Dichloroethene		112.7	76.6	122.1
Tetrahydrofuran		102.3	59.0	117.9
Chloroform		110.3	78.4	124.0

Organics - Volatiles, Prep Batch ID: VF240520W4 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 240520B3.LCSW20B

Run in Batch: 240520B3, Run Date: 05/21/2024 00:27, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Bromochloromethane		113.9	78.2	120.8
1,1,1-Trichloroethane		116.4	79.4	130.9
4-Methyl-2-pentanone (MIBK)		99.7	71.6	125.2
2-Hexanone		100.0	55.4	136.9
Carbon tetrachloride		107.1	72.6	133.0
Benzene		102.5	79.9	124.9
1,2-Dichloroethane		101.5	76.0	126.3
Trichloroethene		102.0	79.7	124.2
1,2-Dichloropropane		99.3	78.6	126.4
Bromodichloromethane		104.7	80.4	128.2
Dibromomethane		103.4	76.9	122.1
cis-1,3-Dichloropropene		101.3	79.8	129.9
Toluene		104.7	79.8	124.5
trans-1,3-Dichloropropene		101.1	74.0	131.3
1,1,2-Trichloroethane		103.0	78.7	123.1
Tetrachloroethene		104.1	74.5	124.5
trans-1,4-Dichloro-2-butene		83.0	68.6	135.4
Dibromochloromethane		106.1	74.6	127.2
1,2-Dibromoethane		103.7	70.3	133.7
Chlorobenzene		105.5	79.2	122.7
1,1,1,2-Tetrachloroethane		108.4	80.3	128.2
Ethylbenzene		105.1	79.5	129.1
p,m-Xylene		107.1	79.4	132.2
o-Xylene		107.0	80.2	131.0
Styrene		104.2	69.5	126.7
Isopropylbenzene		106.9	74.4	121.5
Bromoform		105.1	69.4	128.0
1,1,2,2-Tetrachloroethane		102.0	79.8	126.3
1,2,3-Trichloropropane		105.3	78.3	138.8
n-Propylbenzene		107.0	82.0	130.7
Bromobenzene		106.7	78.7	124.6
1,3,5-Trimethylbenzene		106.4	81.3	128.9
tert-Butylbenzene		107.9	80.7	128.9
1,2,4-Trimethylbenzene		107.4	81.4	130.8
sec-Butylbenzene		106.9	77.4	129.8
p-Isopropyltoluene		107.9	79.8	137.5
1,3-Dichlorobenzene		106.6	77.0	131.3
1,4-Dichlorobenzene		106.1	20.7	137.7
1,2-Dichlorobenzene		106.5	10.0	166.2
1,2,3-Trimethylbenzene		106.3	76.3	124.2
n-Butylbenzene		105.3	80.0	133.3
Hexachloroethane		111.6	23.8	138.1
1,2-Dibromo-3-chloropropane		104.6	21.2	189.4
1,2,4-Trichlorobenzene		110.4	27.4	143.4
1,2,3-Trichlorobenzene		112.0	75.4	131.4
Naphthalene		112.3	32.9	135.8

Organics - Volatiles, Prep Batch ID: VF240520W4 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 240520B3.LCSW20B

Run in Batch: 240520B3, Run Date: 05/21/2024 00:27, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
2-Methylnaphthalene		111.6	25.5	165.5

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240520B3.LCSDW20B, Parent Sample ID: 240520B3.LCSW20B

Run in Batch: 240520B3, Run Date: 05/21/2024 00:50, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Diethyl ether		108.8	67.4	121.2	0.6	30.0
Acetone		107.9	29.9	161.5	4.5	30.0
Methyl iodide		112.7	68.8	116.4	3.8	30.0
Carbon disulfide		102.6	63.8	137.4	6.4	30.0
tert-Methyl butyl ether (MTBE)		114.7	73.2	122.4	0.2	30.0
Acrylonitrile		107.2	69.9	128.9	2.5	30.0
2-Butanone (MEK)		94.5	44.0	134.4	9.6	30.0
Dichlorodifluoromethane		102.9	10.0	222.8	8.4	30.0
Chloromethane		100.0	23.8	166.5	6.6	30.0
Vinyl chloride		103.8	43.5	149.1	7.6	30.0
Bromomethane		109.0	56.8	151.3	4.8	30.0
Chloroethane		108.6	53.4	149.4	1.8	30.0
Trichlorofluoromethane		109.2	59.7	151.8	4.1	30.0
1,1-Dichloroethene		106.4	69.6	139.4	2.4	30.0
Methylene chloride		108.9	73.3	121.1	1.1	30.0
trans-1,2-Dichloroethene		106.2	73.6	129.3	4.9	30.0
1,1-Dichloroethane		110.1	71.5	126.2	3.5	30.0
cis-1,2-Dichloroethene		109.2	76.6	122.1	3.1	30.0
Tetrahydrofuran		94.7	59.0	117.9	7.7	30.0
Chloroform		107.5	78.4	124.0	2.6	30.0
Bromochloromethane		112.8	78.2	120.8	1.0	30.0
1,1,1-Trichloroethane		109.2	79.4	130.9	6.4	30.0
4-Methyl-2-pentanone (MIBK)		99.6	71.6	125.2	0.2	30.0
2-Hexanone		98.2	55.4	136.9	1.8	30.0
Carbon tetrachloride		103.2	72.6	133.0	3.7	30.0
Benzene		100.2	79.9	124.9	2.2	30.0
1,2-Dichloroethane		104.9	76.0	126.3	3.3	30.0
Trichloroethene		100.4	79.7	124.2	1.6	30.0
1,2-Dichloropropane		99.1	78.6	126.4	0.2	30.0
Bromodichloromethane		107.2	80.4	128.2	2.3	30.0
Dibromomethane		104.6	76.9	122.1	1.2	30.0
cis-1,3-Dichloropropene		101.7	79.8	129.9	0.4	30.0
Toluene		102.0	79.8	124.5	2.6	30.0
trans-1,3-Dichloropropene		103.7	74.0	131.3	2.6	30.0
1,1,2-Trichloroethane		104.3	78.7	123.1	1.3	30.0
Tetrachloroethene		100.0	74.5	124.5	4.0	30.0
trans-1,4-Dichloro-2-butene		83.7	68.6	135.4	0.8	30.0
Dibromochloromethane		106.7	74.6	127.2	0.5	30.0
1,2-Dibromoethane		103.5	70.3	133.7	0.1	30.0
Chlorobenzene		103.7	79.2	122.7	1.7	30.0

Organics - Volatiles, Prep Batch ID: VF240520W4 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: 240520B3.LCSDW20B, Parent Sample ID: 240520B3.LCSW20B

Run in Batch: 240520B3, Run Date: 05/21/2024 00:50, Prep Date: 05/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,1,1,2-Tetrachloroethane		106.5	80.3	128.2	1.8	30.0
Ethylbenzene		101.8	79.5	129.1	3.2	30.0
p,m-Xylene		104.0	79.4	132.2	2.9	30.0
o-Xylene		105.4	80.2	131.0	1.5	30.0
Styrene		104.2	69.5	126.7	0.0	30.0
Isopropylbenzene		103.2	74.4	121.5	3.5	30.0
Bromoform		106.9	69.4	128.0	1.7	30.0
1,1,2,2-Tetrachloroethane		103.7	79.8	126.3	1.7	30.0
1,2,3-Trichloropropane		105.6	78.3	138.8	0.3	30.0
n-Propylbenzene		102.9	82.0	130.7	3.8	30.0
Bromobenzene		106.6	78.7	124.6	0.1	30.0
1,3,5-Trimethylbenzene		103.3	81.3	128.9	2.9	30.0
tert-Butylbenzene		103.5	80.7	128.9	4.2	30.0
1,2,4-Trimethylbenzene		105.4	81.4	130.8	1.8	30.0
sec-Butylbenzene		103.1	77.4	129.8	3.6	30.0
p-Isopropyltoluene		103.8	79.8	137.5	3.8	30.0
1,3-Dichlorobenzene		105.5	77.0	131.3	1.0	30.0
1,4-Dichlorobenzene		105.2	20.7	137.7	0.8	30.0
1,2-Dichlorobenzene		107.0	10.0	166.2	0.5	30.0
1,2,3-Trimethylbenzene		104.9	76.3	124.2	1.3	30.0
n-Butylbenzene		102.0	80.0	133.3	3.2	30.0
Hexachloroethane		107.5	23.8	138.1	3.8	30.0
1,2-Dibromo-3-chloropropane		103.8	21.2	189.4	0.7	30.0
1,2,4-Trichlorobenzene		111.7	27.4	143.4	1.2	30.0
1,2,3-Trichlorobenzene		112.7	75.4	131.4	0.6	30.0
Naphthalene		112.3	32.9	135.8	0.0	30.0
2-Methylnaphthalene		113.0	25.5	165.5	1.3	30.0

Merit Laboratories Login Checklist

Lab Set ID: S62234
Client: ARCADIS_NOVI (ARCADIS U.S., Inc.)
Project: 30214036.0470B / RACER Lansing GWS
Submitted: 05/17/2024 13:15 Login User: MMC

Attention: Kaitlyn Hunt
Address: Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 5.8
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[ ] Yes	[X] No	[ ] N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	[X] Yes	[ ] No	[ ] N/A	Do sample have correct chemical preservation	
11.	[ ] Yes	[ ] No	[X] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[ ] Yes	[X] No	[ ] N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[ ] Yes	[X] No	[ ] N/A	Samples require laboratory filtration	
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[X] No	[ ] N/A	Do water VOC or TOX bottles contain headspace	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Plant 3

Merit Laboratories, Inc.
2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 4 OF 4

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Tiffany Linder, Kaitlyn Hunt
COMPANY: Arcadis
ADDRESS: 28550 Cabot Drive, STE 500
CITY: Novi | STATE: MI | ZIP CODE: 48377
PHONE NO.: 947-777-5215 | FAX NO.: | P.O. NO.: US3460016187
E-MAIL ADDRESS: kaitlyn.hunt@arcadis.com | QUOTE NO.:

INVOICE TO

CONTACT NAME: ☒ SAME
COMPANY:
ADDRESS:
CITY: | STATE: | ZIP CODE:
PHONE NO.: | E-MAIL ADDRESS: tiffany.linder@arcadis.com

PROJECT NO./NAME: 30214036.0470B / RACER Lansing GWS
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Donald Richmond/Donald Richmond

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☒ EDD ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐ OHIO VAP ☐ Drinking Water ☐ DoD ☐ NPDES
Project Locations: ☐ Detroit ☐ New York ☐ Other
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG. IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	1,4-Dioxane - 8260 SIMS	VOC - 8260 SIMS	SVOC-8270 SIMS
62234.01	5/16/24	1105	MW-13-48_051624	GW	3		3						X	X	X
.02	5/16/24	1230	MW-13-34_051624	GW	3		3						X	X	X
.03	5/16/24	1420	MW-13-22_051624	GW	3		3						X	X	X
.04	5/16/24	1505	MW-12-21_051624	GW	3		3						X	X	X
.05	5/16/24	1635	MW-13-29_051624	GW	3		3						X	X	
.06	5/17/24	1000	TW-15-11_051724	GW	3		3						X		
.07	5/17/24	0955	AS-19-06_051724	GW	3		3						X		
.08	5/17/24	1130	PW-14-03_051724	GW	3		3						X		
.09	5/17/24	1125	AS-19-05_051724	GW	3		3						X		
.10	5/16/24	—	Dup-07_051624	GW	3		3						X	X	

RELINQUISHED BY: SIGNATURE/ORGANIZATION: [signature] /Arcadis (Sampler) DATE: 5/17/24 TIME: 1230
RECEIVED BY: SIGNATURE/ORGANIZATION: [signature] /Arcadis DATE: 5/17/24 TIME: 1230

RELINQUISHED BY: SIGNATURE/ORGANIZATION: [signature] /Arcadis DATE: 5/17/24 TIME: 1315
RECEIVED BY: SIGNATURE/ORGANIZATION: [signature] DATE: 5/17/24 TIME: 1315

RELINQUISHED BY: SIGNATURE/ORGANIZATION: DATE: TIME:
RECEIVED BY: SIGNATURE/ORGANIZATION: DATE: TIME:

SEAL NO. | SEAL INTACT YES ☐ NO ☐ | INITIALS
SEAL NO. | SEAL INTACT YES ☐ NO ☐ | INITIALS

NOTES | TEMP. ON ARRIVAL: 5.8

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

Analytical Laboratory Report

Report ID: S62361.01(01)+QC01
Generated on 05/30/2024

Report to

Attention: Kaitlyn Hunt
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 C:947-777-5215 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Addtional Contacts: Marina Samp, Tiffany Linder

Report produced by

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John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S62361.01-S62361.26
Project: 30214036.0470A / RACER Lansing GWS
Collected Date(s): 05/21/2024 - 05/22/2024
Submitted Date/Time: 05/22/2024 13:45
Sampled by: Austin Westhuis / Billy Cobern
P.O. #: US3460016166

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Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Starred (*) analytes are not NY NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.
Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.
All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.
For a specific list of accredited analytes, please feel free to contact the laboratory or visit https://www.meritlabs.com/certifications.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
o	Associated EIS outside of control limits
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
q	Qualifier ion ratio outside of control limits
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
E200.8	EPA Method 200.8 Revision 5.4
N/A	Not Applicable
SM3500-Cr B	Standard Method 3500 Cr B 2011
SW3015A	SW 846 Method 3015A Revision 1 February 2007
SW3510C	SW 846 Method 3510C Revision 3 December 1996
SW5030C/8260C	SW 846 Method 8260C Revision 3 August 2006 / 5030C Revision 3 May 2003
SW8260B - SIM	SW 846 Method 8260B Revision 2 December 1996 SIMs
SW8270D	SW 846 Method 8270D Revision 4 February 2007

Sample Summary (26 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S62361.01	MW-13-41_052124	Groundwater	05/21/24 11:15
S62361.02	MW-15-71_052124	Groundwater	05/21/24 12:35
S62361.03	MW-14-64_052124	Groundwater	05/21/24 14:00
S62361.04	MW-13-49_052124	Groundwater	05/21/24 15:30
S62361.05	MW-13-46_052124	Groundwater	05/21/24 16:40
S62361.06	MW-12-20_052124	Groundwater	05/21/24 17:45
S62361.07	MW-05(3)_052124	Groundwater	05/21/24 17:50
S62361.08	MW-02-04(3)_052124	Groundwater	05/21/24 11:00
S62361.09	MW-18-101_052124	Groundwater	05/21/24 15:50
S62361.10	MW-13-32_052224	Groundwater	05/22/24 11:00
S62361.11	DUP-05_052224	Groundwater	05/22/24 00:01
S62361.12	P3-SB-28_052224	Groundwater	05/22/24 12:00
S62361.13	MW-13-23_052124	Groundwater	05/21/24 10:50
S62361.14	MW-13-23_052124 MS	Groundwater	05/21/24 10:50
S62361.15	MW-13-23_052124 MSD	Groundwater	05/21/24 10:50
S62361.16	MW-02-02(3)_052124	Groundwater	05/21/24 12:35
S62361.17	MW-13-25_052124	Groundwater	05/21/24 13:50
S62361.18	MW-13-24_052124	Groundwater	05/21/24 15:15
S62361.19	MW-91-2R_052224	Groundwater	05/22/24 09:35
S62361.20	DUP-09_052224	Groundwater	05/22/24 00:01
S62361.21	CH-14-RO_052224	Groundwater	05/22/24 10:40
S62361.22	CH-14-RO_052224 MS	Groundwater	05/22/24 10:40
S62361.23	CH-14-RO_052224 MSD	Groundwater	05/22/24 10:40
S62361.24	MW-18-88_052224	Groundwater	05/22/24 11:50
S62361.25	UNK-11_052224	Groundwater	05/22/24 12:55
S62361.26	Trip Blank	Water	05/21/24 00:01

Lab Sample ID: S62361.01
Sample Tag: MW-13-41_052124
Collected Date/Time: 05/21/2024 11:15
Matrix: Groundwater
COC Reference: 1

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.1	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/24/24 12:00	NDK	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/23/24 19:06, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	

Lab Sample ID: S62361.01 (continued)
Sample Tag: MW-13-41_052124

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/23/24 19:06, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Lab Sample ID: S62361.02
Sample Tag: MW-15-71_052124
Collected Date/Time: 05/21/2024 12:35
Matrix: Groundwater
COC Reference: 1

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.1	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/24/24 12:00	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/23/24 19:40, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	Not detected	1		ug/L	1	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S62361.03
Sample Tag: MW-14-64_052124
Collected Date/Time: 05/21/2024 14:00
Matrix: Groundwater
COC Reference: 1

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.1	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/24/24 12:00	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/23/24 20:05, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	Not detected	1		ug/L	1	123-91-1	

Lab Sample ID: S62361.04
Sample Tag: MW-13-49_052124
Collected Date/Time: 05/21/2024 15:30
Matrix: Groundwater
COC Reference: 1

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.1	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/24/24 12:00	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/23/24 20:29, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	Not detected	1		ug/L	1	123-91-1	

Lab Sample ID: S62361.05
Sample Tag: MW-13-46_052124
Collected Date/Time: 05/21/2024 16:40
Matrix: Groundwater
COC Reference: 1

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.1	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/24/24 12:00	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/23/24 20:54, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	Not detected	1		ug/L	1	123-91-1	

Lab Sample ID: S62361.06
Sample Tag: MW-12-20_052124
Collected Date/Time: 05/21/2024 17:45
Matrix: Groundwater
COC Reference: 1

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.1	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/24/24 12:00	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/23/24 21:18, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	Not detected	1		ug/L	1	123-91-1	

Lab Sample ID: S62361.07
Sample Tag: MW-05(3)_052124
Collected Date/Time: 05/21/2024 17:50
Matrix: Groundwater
COC Reference: 1

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.1	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/24/24 12:00	NDK	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/23/24 19:29, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	

Lab Sample ID: S62361.07 (continued)
Sample Tag: MW-05(3)_052124

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/23/24 19:29, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Lab Sample ID: S62361.08
Sample Tag: MW-02-04(3)_052124
Collected Date/Time: 05/21/2024 11:00
Matrix: Groundwater
COC Reference: 1

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.1	IR
2	125mL Plastic	HNO3	Yes	5.1	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/24/24 12:00	NDK	
Metal Digestion	Completed	SW3015A	05/29/24 12:10	CCM	
Metal Digestion	Completed	SW3015A	05/29/24 12:10	CCM	

Metals

Method: E200.8, Run Date: 05/29/24 13:22, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.083	0.002		mg/L	5	7440-38-2	
Chromium	0.011	0.005		mg/L	5	7440-47-3	
Copper	0.007	0.005		mg/L	5	7440-50-8	
Lead	0.005	0.003		mg/L	5	7439-92-1	
Nickel	0.022	0.005		mg/L	5	7440-02-0	
Vanadium	0.009	0.005		mg/L	5	7440-62-2	

Method: E200.8, Run Date: 05/29/24 13:30, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.014	0.002		mg/L	5	7440-38-2	
Chromium, Dissolved	Not detected	0.005		mg/L	5	7440-47-3	
Copper, Dissolved	Not detected	0.005		mg/L	5	7440-50-8	
Lead, Dissolved	Not detected	0.003		mg/L	5	7439-92-1	
Nickel, Dissolved	0.009	0.005		mg/L	5	7440-02-0	
Vanadium, Dissolved	Not detected	0.005		mg/L	5	7440-62-2	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/23/24 21:43, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	6	1		ug/L	1	123-91-1	

Lab Sample ID: S62361.09
Sample Tag: MW-18-101_052124
Collected Date/Time: 05/21/2024 15:50
Matrix: Groundwater
COC Reference: 1

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.1	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/24/24 12:00	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/23/24 22:08, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	2	1		ug/L	1	123-91-1	

Lab Sample ID: S62361.10
Sample Tag: MW-13-32_052224
Collected Date/Time: 05/22/2024 11:00
Matrix: Groundwater
COC Reference: 1

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Amber	None	Yes	5.1	IR
1	125mL Plastic	HNO3	Yes	5.1	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	05/29/24 12:10	CCM	
BNA Extraction	Completed	SW3510C	05/28/24 13:00	JWR	

Metals

Method: E200.8, Run Date: 05/29/24 13:32, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	Not detected	0.002		mg/L	5	7440-38-2	
Chromium	Not detected	0.005		mg/L	5	7440-47-3	
Copper	0.005	0.005		mg/L	5	7440-50-8	
Lead	Not detected	0.003		mg/L	5	7439-92-1	
Nickel	0.400	0.005		mg/L	5	7440-02-0	
Vanadium	Not detected	0.005		mg/L	5	7440-62-2	

Organics - Semi-Volatiles

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 05/29/24 16:34, Analyst: PL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acenaphthene	Not detected	5		ug/L	2	83-32-9	
Acenaphthylene	Not detected	5		ug/L	2	208-96-8	
Anthracene	Not detected	5		ug/L	2	120-12-7	
Benzo(a)anthracene	Not detected	1		ug/L	2	56-55-3	
Benzo(b)fluoranthene	Not detected	1		ug/L	2	205-99-2	
Benzo(k)fluoranthene	Not detected	1		ug/L	2	207-08-9	
Benzo(ghi)perylene	Not detected	1		ug/L	2	191-24-2	
Benzo(a)pyrene	Not detected	1		ug/L	2	50-32-8	
bis(2-Chloroethoxy)methane	Not detected	5		ug/L	2	111-91-1	
bis(2-Chloroethyl)ether	Not detected	5		ug/L	2	111-44-4	
bis(2-Chloroisopropyl)ether*	Not detected	5		ug/L	2	108-60-1	
bis(2-Ethylhexyl)phthalate	Not detected	5		ug/L	2	117-81-7	
4-Bromophenyl phenyl ether	Not detected	5		ug/L	2	101-55-3	
Butyl benzyl phthalate	Not detected	5		ug/L	2	85-68-7	
4-Chloroaniline	Not detected	10		ug/L	2	106-47-8	
2-Chloronaphthalene	Not detected	5		ug/L	2	91-58-7	
4-Chloro-3-methylphenol	Not detected	5		ug/L	2	59-50-7	
2-Chlorophenol	Not detected	10		ug/L	2	95-57-8	
4-Chlorophenyl phenyl ether	Not detected	5		ug/L	2	7005-72-3	
Chrysene	Not detected	1		ug/L	2	218-01-9	
3-, 4-Methylphenol (p,m-Cresol)	Not detected	20		ug/L	2	3/4-CRESOL	
2-Methylphenol (o-Cresol)	Not detected	10		ug/L	2	95-48-7	
Dibenzo(ah)anthracene	Not detected	2		ug/L	2	53-70-3	
Dibenzofuran	Not detected	4		ug/L	2	132-64-9	
di-n-Butyl phthalate	Not detected	5		ug/L	2	84-74-2	

Lab Sample ID: S62361.10 (continued)
Sample Tag: MW-13-32_052224

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 05/29/24 16:34, Analyst: PL (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,2-Dichlorobenzene	Not detected	1		ug/L	2	95-50-1	
1,3-Dichlorobenzene	Not detected	1		ug/L	2	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	2	106-46-7	
3,3'-Dichlorobenzidine	Not detected	5		ug/L	2	91-94-1	
2,4-Dichlorophenol	Not detected	10		ug/L	2	120-83-2	
Diethyl phthalate	Not detected	5		ug/L	2	84-66-2	
2,4-Dimethylphenol	Not detected	5		ug/L	2	105-67-9	
Dimethyl phthalate	Not detected	5		ug/L	2	131-11-3	
4,6-Dinitro-2-methylphenol	Not detected	20		ug/L	2	534-52-1	
2,4-Dinitrophenol	Not detected	25		ug/L	2	51-28-5	
2,4-Dinitrotoluene	Not detected	5		ug/L	2	121-14-2	
2,6-Dinitrotoluene	Not detected	5		ug/L	2	606-20-2	
1,2-Diphenylhydrazine*	Not detected	5		ug/L	2	122-66-7	
di-n-Octyl phthalate	Not detected	5		ug/L	2	117-84-0	
Fluoranthene	Not detected	1		ug/L	2	206-44-0	
Fluorene	Not detected	5		ug/L	2	86-73-7	
Hexachlorobenzene	Not detected	5		ug/L	2	118-74-1	
Hexachlorobutadiene	Not detected	10		ug/L	2	87-68-3	
Hexachlorocyclopentadiene*	Not detected	5		ug/L	2	77-47-4	
Hexachloroethane	Not detected	5		ug/L	2	67-72-1	
Indeno(1,2,3-cd)pyrene	Not detected	2		ug/L	2	193-39-5	
Isophorone	Not detected	5		ug/L	2	78-59-1	
2-Methylnaphthalene	Not detected	5		ug/L	2	91-57-6	
Naphthalene	Not detected	5		ug/L	2	91-20-3	
2-Nitroaniline	Not detected	25		ug/L	2	88-74-4	
3-Nitroaniline	Not detected	25		ug/L	2	99-09-2	
4-Nitroaniline	Not detected	25		ug/L	2	100-01-6	
Nitrobenzene	Not detected	5		ug/L	2	98-95-3	
2-Nitrophenol	Not detected	5		ug/L	2	88-75-5	
4-Nitrophenol	Not detected	25		ug/L	2	100-02-7	
N-Nitrosodiphenylamine	Not detected	5		ug/L	2	86-30-6	
N-Nitrosodi-n-propylamine	Not detected	5		ug/L	2	621-64-7	
Pentachlorophenol	Not detected	5		ug/L	2	87-86-5	
Phenanthrene	Not detected	2		ug/L	2	85-01-8	
Phenol	Not detected	5		ug/L	2	108-95-2	
Pyrene	Not detected	5		ug/L	2	129-00-0	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	2	120-82-1	
2,4,5-Trichlorophenol	Not detected	5		ug/L	2	95-95-4	
2,4,6-Trichlorophenol	Not detected	4		ug/L	2	88-06-2	

Lab Sample ID: S62361.11
Sample Tag: DUP-05_052224
Collected Date/Time: 05/22/2024 00:01
Matrix: Groundwater
COC Reference: 1

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Amber	None	Yes	5.1	IR
1	125mL Plastic	HNO3	Yes	5.1	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	05/29/24 12:10	CCM	
BNA Extraction	Completed	SW3510C	05/28/24 13:00	JWR	

Metals

Method: E200.8, Run Date: 05/29/24 13:34, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	Not detected	0.002		mg/L	5	7440-38-2	
Chromium	Not detected	0.005		mg/L	5	7440-47-3	
Copper	0.005	0.005		mg/L	5	7440-50-8	
Lead	Not detected	0.003		mg/L	5	7439-92-1	
Nickel	0.409	0.005		mg/L	5	7440-02-0	
Vanadium	Not detected	0.005		mg/L	5	7440-62-2	

Organics - Semi-Volatiles

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 05/29/24 17:04, Analyst: PL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acenaphthene	Not detected	5		ug/L	2	83-32-9	
Acenaphthylene	Not detected	5		ug/L	2	208-96-8	
Anthracene	Not detected	5		ug/L	2	120-12-7	
Benzo(a)anthracene	Not detected	1		ug/L	2	56-55-3	
Benzo(b)fluoranthene	Not detected	1		ug/L	2	205-99-2	
Benzo(k)fluoranthene	Not detected	1		ug/L	2	207-08-9	
Benzo(ghi)perylene	Not detected	1		ug/L	2	191-24-2	
Benzo(a)pyrene	Not detected	1		ug/L	2	50-32-8	
bis(2-Chloroethoxy)methane	Not detected	5		ug/L	2	111-91-1	
bis(2-Chloroethyl)ether	Not detected	5		ug/L	2	111-44-4	
bis(2-Chloroisopropyl)ether*	Not detected	5		ug/L	2	108-60-1	
bis(2-Ethylhexyl)phthalate	Not detected	5		ug/L	2	117-81-7	
4-Bromophenyl phenyl ether	Not detected	5		ug/L	2	101-55-3	
Butyl benzyl phthalate	Not detected	5		ug/L	2	85-68-7	
4-Chloroaniline	Not detected	10		ug/L	2	106-47-8	
2-Chloronaphthalene	Not detected	5		ug/L	2	91-58-7	
4-Chloro-3-methylphenol	Not detected	5		ug/L	2	59-50-7	
2-Chlorophenol	Not detected	10		ug/L	2	95-57-8	
4-Chlorophenyl phenyl ether	Not detected	5		ug/L	2	7005-72-3	
Chrysene	Not detected	1		ug/L	2	218-01-9	
3-, 4-Methylphenol (p,m-Cresol)	Not detected	20		ug/L	2	3/4-CRESOL	
2-Methylphenol (o-Cresol)	Not detected	10		ug/L	2	95-48-7	
Dibenzo(ah)anthracene	Not detected	2		ug/L	2	53-70-3	
Dibenzofuran	Not detected	4		ug/L	2	132-64-9	
di-n-Butyl phthalate	Not detected	5		ug/L	2	84-74-2	

Lab Sample ID: S62361.11 (continued)
Sample Tag: DUP-05_052224

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 05/29/24 17:04, Analyst: PL (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,2-Dichlorobenzene	Not detected	1		ug/L	2	95-50-1	
1,3-Dichlorobenzene	Not detected	1		ug/L	2	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	2	106-46-7	
3,3'-Dichlorobenzidine	Not detected	5		ug/L	2	91-94-1	
2,4-Dichlorophenol	Not detected	10		ug/L	2	120-83-2	
Diethyl phthalate	Not detected	5		ug/L	2	84-66-2	
2,4-Dimethylphenol	Not detected	5		ug/L	2	105-67-9	
Dimethyl phthalate	Not detected	5		ug/L	2	131-11-3	
4,6-Dinitro-2-methylphenol	Not detected	20		ug/L	2	534-52-1	
2,4-Dinitrophenol	Not detected	25		ug/L	2	51-28-5	
2,4-Dinitrotoluene	Not detected	5		ug/L	2	121-14-2	
2,6-Dinitrotoluene	Not detected	5		ug/L	2	606-20-2	
1,2-Diphenylhydrazine*	Not detected	5		ug/L	2	122-66-7	
di-n-Octyl phthalate	Not detected	5		ug/L	2	117-84-0	
Fluoranthene	Not detected	1		ug/L	2	206-44-0	
Fluorene	Not detected	5		ug/L	2	86-73-7	
Hexachlorobenzene	Not detected	5		ug/L	2	118-74-1	
Hexachlorobutadiene	Not detected	10		ug/L	2	87-68-3	
Hexachlorocyclopentadiene*	Not detected	5		ug/L	2	77-47-4	
Hexachloroethane	Not detected	5		ug/L	2	67-72-1	
Indeno(1,2,3-cd)pyrene	Not detected	2		ug/L	2	193-39-5	
Isophorone	Not detected	5		ug/L	2	78-59-1	
2-Methylnaphthalene	Not detected	5		ug/L	2	91-57-6	
Naphthalene	Not detected	5		ug/L	2	91-20-3	
2-Nitroaniline	Not detected	25		ug/L	2	88-74-4	
3-Nitroaniline	Not detected	25		ug/L	2	99-09-2	
4-Nitroaniline	Not detected	25		ug/L	2	100-01-6	
Nitrobenzene	Not detected	5		ug/L	2	98-95-3	
2-Nitrophenol	Not detected	5		ug/L	2	88-75-5	
4-Nitrophenol	Not detected	25		ug/L	2	100-02-7	
N-Nitrosodiphenylamine	Not detected	5		ug/L	2	86-30-6	
N-Nitrosodi-n-propylamine	Not detected	5		ug/L	2	621-64-7	
Pentachlorophenol	Not detected	5		ug/L	2	87-86-5	
Phenanthrene	Not detected	2		ug/L	2	85-01-8	
Phenol	Not detected	5		ug/L	2	108-95-2	
Pyrene	Not detected	5		ug/L	2	129-00-0	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	2	120-82-1	
2,4,5-Trichlorophenol	Not detected	5		ug/L	2	95-95-4	
2,4,6-Trichlorophenol	Not detected	4		ug/L	2	88-06-2	

Lab Sample ID: S62361.12
Sample Tag: P3-SB-28_052224
Collected Date/Time: 05/22/2024 12:00
Matrix: Groundwater
COC Reference: 1

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Amber	None	Yes	5.1	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
BNA Extraction	Completed	SW3510C	05/28/24 15:00	JWR	

Organics - Semi-Volatiles

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 05/29/24 17:35, Analyst: PL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acenaphthene	Not detected	5		ug/L	2	83-32-9	
Acenaphthylene	Not detected	5		ug/L	2	208-96-8	
Anthracene	Not detected	5		ug/L	2	120-12-7	
Benzo(a)anthracene	Not detected	1		ug/L	2	56-55-3	
Benzo(b)fluoranthene	Not detected	1		ug/L	2	205-99-2	
Benzo(k)fluoranthene	Not detected	1		ug/L	2	207-08-9	
Benzo(ghi)perylene	Not detected	1		ug/L	2	191-24-2	
Benzo(a)pyrene	Not detected	1		ug/L	2	50-32-8	
bis(2-Chloroethoxy)methane	Not detected	5		ug/L	2	111-91-1	
bis(2-Chloroethyl)ether	Not detected	5		ug/L	2	111-44-4	
bis(2-Chloroisopropyl)ether*	Not detected	5		ug/L	2	108-60-1	
bis(2-Ethylhexyl)phthalate	Not detected	5		ug/L	2	117-81-7	
4-Bromophenyl phenyl ether	Not detected	5		ug/L	2	101-55-3	
Butyl benzyl phthalate	Not detected	5		ug/L	2	85-68-7	
4-Chloroaniline	Not detected	10		ug/L	2	106-47-8	
2-Chloronaphthalene	Not detected	5		ug/L	2	91-58-7	
4-Chloro-3-methylphenol	Not detected	5		ug/L	2	59-50-7	
2-Chlorophenol	Not detected	10		ug/L	2	95-57-8	
4-Chlorophenyl phenyl ether	Not detected	5		ug/L	2	7005-72-3	
Chrysene	Not detected	1		ug/L	2	218-01-9	
3-, 4-Methylphenol (p,m-Cresol)	Not detected	20		ug/L	2	3/4-CRESOL	
2-Methylphenol (o-Cresol)	Not detected	10		ug/L	2	95-48-7	
Dibenzo(ah)anthracene	Not detected	2		ug/L	2	53-70-3	
Dibenzofuran	Not detected	4		ug/L	2	132-64-9	
di-n-Butyl phthalate	Not detected	5		ug/L	2	84-74-2	
1,2-Dichlorobenzene	Not detected	1		ug/L	2	95-50-1	
1,3-Dichlorobenzene	Not detected	1		ug/L	2	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	2	106-46-7	
3,3'-Dichlorobenzidine	Not detected	5		ug/L	2	91-94-1	
2,4-Dichlorophenol	Not detected	10		ug/L	2	120-83-2	
Diethyl phthalate	Not detected	5		ug/L	2	84-66-2	
2,4-Dimethylphenol	Not detected	5		ug/L	2	105-67-9	
Dimethyl phthalate	Not detected	5		ug/L	2	131-11-3	
4,6-Dinitro-2-methylphenol	Not detected	20		ug/L	2	534-52-1	
2,4-Dinitrophenol	Not detected	25		ug/L	2	51-28-5	
2,4-Dinitrotoluene	Not detected	5		ug/L	2	121-14-2	
2,6-Dinitrotoluene	Not detected	5		ug/L	2	606-20-2	

Lab Sample ID: S62361.12 (continued)
Sample Tag: P3-SB-28_052224

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 05/29/24 17:35, Analyst: PL (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,2-Diphenylhydrazine*	Not detected	5		ug/L	2	122-66-7	
di-n-Octyl phthalate	Not detected	5		ug/L	2	117-84-0	
Fluoranthene	Not detected	1		ug/L	2	206-44-0	
Fluorene	Not detected	5		ug/L	2	86-73-7	
Hexachlorobenzene	Not detected	5		ug/L	2	118-74-1	
Hexachlorobutadiene	Not detected	10		ug/L	2	87-68-3	
Hexachlorocyclopentadiene*	Not detected	5		ug/L	2	77-47-4	
Hexachloroethane	Not detected	5		ug/L	2	67-72-1	
Indeno(1,2,3-cd)pyrene	Not detected	2		ug/L	2	193-39-5	
Isophorone	Not detected	5		ug/L	2	78-59-1	
2-Methylnaphthalene	Not detected	5		ug/L	2	91-57-6	
Naphthalene	Not detected	5		ug/L	2	91-20-3	
2-Nitroaniline	Not detected	25		ug/L	2	88-74-4	
3-Nitroaniline	Not detected	25		ug/L	2	99-09-2	
4-Nitroaniline	Not detected	25		ug/L	2	100-01-6	
Nitrobenzene	Not detected	5		ug/L	2	98-95-3	
2-Nitrophenol	Not detected	5		ug/L	2	88-75-5	
4-Nitrophenol	Not detected	25		ug/L	2	100-02-7	
N-Nitrosodiphenylamine	Not detected	5		ug/L	2	86-30-6	
N-Nitrosodi-n-propylamine	Not detected	5		ug/L	2	621-64-7	
Pentachlorophenol	Not detected	5		ug/L	2	87-86-5	
Phenanthrene	Not detected	2		ug/L	2	85-01-8	
Phenol	Not detected	5		ug/L	2	108-95-2	
Pyrene	Not detected	5		ug/L	2	129-00-0	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	2	120-82-1	
2,4,5-Trichlorophenol	Not detected	5		ug/L	2	95-95-4	
2,4,6-Trichlorophenol	Not detected	4		ug/L	2	88-06-2	

Lab Sample ID: S62361.13
Sample Tag: MW-13-23_052124
Collected Date/Time: 05/21/2024 10:50
Matrix: Groundwater
COC Reference: 2

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.1	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/24/24 12:00	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/23/24 22:32, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	Not detected	1		ug/L	1	123-91-1	

Lab Sample ID: S62361.14
Sample Tag: MW-13-23_052124 MS
Collected Date/Time: 05/21/2024 10:50
Matrix: Groundwater
COC Reference: 2

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.1	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/24/24 12:00	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/24/24 00:59, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	64	1		ug/L	1	123-91-1	1

1-Spiked at 50 ug/L

Lab Sample ID: S62361.15
Sample Tag: MW-13-23_052124 MSD
Collected Date/Time: 05/21/2024 10:50
Matrix: Groundwater
COC Reference: 2

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.1	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/24/24 12:00	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/24/24 01:23, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	57	1		ug/L	1	123-91-1	1

1-Spiked at 50 ug/L

Lab Sample ID: S62361.16
Sample Tag: MW-02-02(3)_052124
Collected Date/Time: 05/21/2024 12:35
Matrix: Groundwater
COC Reference: 2

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.1	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/24/24 12:00	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/23/24 22:57, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	Not detected	1		ug/L	1	123-91-1	

Lab Sample ID: S62361.17
Sample Tag: MW-13-25_052124
Collected Date/Time: 05/21/2024 13:50
Matrix: Groundwater
COC Reference: 2

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.1	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/24/24 12:00	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/23/24 23:21, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	Not detected	1		ug/L	1	123-91-1	

Lab Sample ID: S62361.18
Sample Tag: MW-13-24_052124
Collected Date/Time: 05/21/2024 15:15
Matrix: Groundwater
COC Reference: 2

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.1	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/24/24 12:00	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/23/24 23:45, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	Not detected	1		ug/L	1	123-91-1	

Lab Sample ID: S62361.19
Sample Tag: MW-91-2R_052224
Collected Date/Time: 05/22/2024 09:35
Matrix: Groundwater
COC Reference: 2

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.1	IR
1	125mL Plastic	HNO3	Yes	5.1	IR
1	250mL Plastic	None	Yes	5.1	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/24/24 12:00	NDK	
Metal Digestion	Completed	SW3015A	05/29/24 12:10	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 05/22/24 16:20, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI*	Not detected	0.01		mg/L	1	18540-29-9	

Metals

Method: E200.8, Run Date: 05/29/24 13:37, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.011	0.002		mg/L	5	7440-38-2	
Chromium	Not detected	0.005		mg/L	5	7440-47-3	
Copper	Not detected	0.005		mg/L	5	7440-50-8	
Lead	Not detected	0.003		mg/L	5	7439-92-1	
Nickel	Not detected	0.005		mg/L	5	7440-02-0	
Vanadium	Not detected	0.005		mg/L	5	7440-62-2	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/24/24 00:10, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	7	1		ug/L	1	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S62361.20
Sample Tag: DUP-09_052224
Collected Date/Time: 05/22/2024 00:01
Matrix: Groundwater
COC Reference: 2

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.1	IR
1	125mL Plastic	HNO3	Yes	5.1	IR
1	250mL Plastic	None	Yes	5.1	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/24/24 12:00	NDK	
Metal Digestion	Completed	SW3015A	05/29/24 12:10	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 05/22/24 16:30, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI*	Not detected	0.01		mg/L	1	18540-29-9	

Metals

Method: E200.8, Run Date: 05/29/24 13:39, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.010	0.002		mg/L	5	7440-38-2	
Chromium	Not detected	0.005		mg/L	5	7440-47-3	
Copper	Not detected	0.005		mg/L	5	7440-50-8	
Lead	Not detected	0.003		mg/L	5	7439-92-1	
Nickel	Not detected	0.005		mg/L	5	7440-02-0	
Vanadium	Not detected	0.005		mg/L	5	7440-62-2	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/24/24 00:34, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	7	1		ug/L	1	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S62361.21
Sample Tag: CH-14-RO_052224
Collected Date/Time: 05/22/2024 10:40
Matrix: Groundwater
COC Reference: 2

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125mL Plastic	HNO3	Yes	5.1	IR
1	250mL Plastic	None	Yes	5.1	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	05/29/24 12:10	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 05/22/24 16:35, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI*	8.35	0.25		mg/L	25	18540-29-9	

Metals

Method: E200.8, Run Date: 05/29/24 13:46, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium	8.75	0.05		mg/L	50	7440-47-3	

Method: E200.8, Run Date: 05/29/24 13:41, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	Not detected	0.002		mg/L	5	7440-38-2	
Copper	Not detected	0.005		mg/L	5	7440-50-8	
Lead	Not detected	0.003		mg/L	5	7439-92-1	
Nickel	0.009	0.005		mg/L	5	7440-02-0	
Vanadium	Not detected	0.005		mg/L	5	7440-62-2	

Lab Sample ID: S62361.22
Sample Tag: CH-14-RO_052224 MS
Collected Date/Time: 05/22/2024 10:40
Matrix: Groundwater
COC Reference: 2

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125mL Plastic	HNO3	Yes	5.1	IR
1	250mL Plastic	None	Yes	5.1	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	05/29/24 12:10	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 05/22/24 16:40, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI*	13.6	0.25		mg/L	25	18540-29-9	

Metals

Method: E200.8, Run Date: 05/29/24 13:55, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.255	0.002		mg/L	5	7440-38-2	
Chromium	8.77	0.005		mg/L	5	7440-47-3	
Copper	0.239	0.005		mg/L	5	7440-50-8	
Lead	0.233	0.003		mg/L	5	7439-92-1	
Nickel	0.252	0.005		mg/L	5	7440-02-0	
Vanadium	0.256	0.005		mg/L	5	7440-62-2	

Lab Sample ID: S62361.23
Sample Tag: CH-14-RO_052224 MSD
Collected Date/Time: 05/22/2024 10:40
Matrix: Groundwater
COC Reference: 2

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125mL Plastic	HNO3	Yes	5.1	IR
1	250mL Plastic	None	Yes	5.1	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	05/29/24 12:10	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 05/22/24 16:45, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI*	13.6	0.25		mg/L	25	18540-29-9	

Metals

Method: E200.8, Run Date: 05/29/24 13:56, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.258	0.002		mg/L	5	7440-38-2	
Chromium	8.75	0.005		mg/L	5	7440-47-3	
Copper	0.238	0.005		mg/L	5	7440-50-8	
Lead	0.240	0.003		mg/L	5	7439-92-1	
Nickel	0.255	0.005		mg/L	5	7440-02-0	
Vanadium	0.255	0.005		mg/L	5	7440-62-2	

Lab Sample ID: S62361.24
Sample Tag: MW-18-88_052224
Collected Date/Time: 05/22/2024 11:50
Matrix: Groundwater
COC Reference: 2

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.1	IR
1	125mL Plastic	HNO3	Yes	5.1	IR
1	250mL Plastic	None	Yes	5.1	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/24/24 12:00	NDK	
Metal Digestion	Completed	SW3015A	05/29/24 12:10	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 05/22/24 16:50, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI*	Not detected	0.01		mg/L	1	18540-29-9	

Metals

Method: E200.8, Run Date: 05/29/24 13:49, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	Not detected	0.002		mg/L	5	7440-38-2	
Chromium	Not detected	0.005		mg/L	5	7440-47-3	
Copper	Not detected	0.005		mg/L	5	7440-50-8	
Lead	Not detected	0.003		mg/L	5	7439-92-1	
Nickel	Not detected	0.005		mg/L	5	7440-02-0	
Vanadium	Not detected	0.005		mg/L	5	7440-62-2	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/23/24 19:53, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	

Lab Sample ID: S62361.24 (continued)
Sample Tag: MW-18-88_052224

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/23/24 19:53, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Lab Sample ID: S62361.25
Sample Tag: UNK-11_052224
Collected Date/Time: 05/22/2024 12:55
Matrix: Groundwater
COC Reference: 2

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Amber	None	Yes	5.1	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
BNA Extraction	Completed	SW3510C	05/28/24 15:00	JWR	

Organics - Semi-Volatiles

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 05/29/24 18:05, Analyst: PL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acenaphthene	Not detected	5		ug/L	2	83-32-9	
Acenaphthylene	Not detected	5		ug/L	2	208-96-8	
Anthracene	Not detected	5		ug/L	2	120-12-7	
Benzo(a)anthracene	Not detected	1		ug/L	2	56-55-3	
Benzo(b)fluoranthene	Not detected	1		ug/L	2	205-99-2	
Benzo(k)fluoranthene	Not detected	1		ug/L	2	207-08-9	
Benzo(ghi)perylene	Not detected	1		ug/L	2	191-24-2	
Benzo(a)pyrene	Not detected	1		ug/L	2	50-32-8	
bis(2-Chloroethoxy)methane	Not detected	5		ug/L	2	111-91-1	
bis(2-Chloroethyl)ether	Not detected	5		ug/L	2	111-44-4	
bis(2-Chloroisopropyl)ether*	Not detected	5		ug/L	2	108-60-1	
bis(2-Ethylhexyl)phthalate	Not detected	5		ug/L	2	117-81-7	
4-Bromophenyl phenyl ether	Not detected	5		ug/L	2	101-55-3	
Butyl benzyl phthalate	Not detected	5		ug/L	2	85-68-7	
4-Chloroaniline	Not detected	10		ug/L	2	106-47-8	
2-Chloronaphthalene	Not detected	5		ug/L	2	91-58-7	
4-Chloro-3-methylphenol	Not detected	5		ug/L	2	59-50-7	
2-Chlorophenol	Not detected	10		ug/L	2	95-57-8	
4-Chlorophenyl phenyl ether	Not detected	5		ug/L	2	7005-72-3	
Chrysene	Not detected	1		ug/L	2	218-01-9	
3-, 4-Methylphenol (p,m-Cresol)	Not detected	20		ug/L	2	3/4-CRESOL	
2-Methylphenol (o-Cresol)	Not detected	10		ug/L	2	95-48-7	
Dibenzo(ah)anthracene	Not detected	2		ug/L	2	53-70-3	
Dibenzofuran	Not detected	4		ug/L	2	132-64-9	
di-n-Butyl phthalate	Not detected	5		ug/L	2	84-74-2	
1,2-Dichlorobenzene	Not detected	1		ug/L	2	95-50-1	
1,3-Dichlorobenzene	Not detected	1		ug/L	2	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	2	106-46-7	
3,3'-Dichlorobenzidine	Not detected	5		ug/L	2	91-94-1	
2,4-Dichlorophenol	Not detected	10		ug/L	2	120-83-2	
Diethyl phthalate	Not detected	5		ug/L	2	84-66-2	
2,4-Dimethylphenol	Not detected	5		ug/L	2	105-67-9	
Dimethyl phthalate	Not detected	5		ug/L	2	131-11-3	
4,6-Dinitro-2-methylphenol	Not detected	20		ug/L	2	534-52-1	
2,4-Dinitrophenol	Not detected	25		ug/L	2	51-28-5	
2,4-Dinitrotoluene	Not detected	5		ug/L	2	121-14-2	
2,6-Dinitrotoluene	Not detected	5		ug/L	2	606-20-2	

Lab Sample ID: S62361.25 (continued)
Sample Tag: UNK-11_052224

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 05/29/24 18:05, Analyst: PL (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,2-Diphenylhydrazine*	Not detected	5		ug/L	2	122-66-7	
di-n-Octyl phthalate	Not detected	5		ug/L	2	117-84-0	
Fluoranthene	Not detected	1		ug/L	2	206-44-0	
Fluorene	Not detected	5		ug/L	2	86-73-7	
Hexachlorobenzene	Not detected	5		ug/L	2	118-74-1	
Hexachlorobutadiene	Not detected	10		ug/L	2	87-68-3	
Hexachlorocyclopentadiene*	Not detected	5		ug/L	2	77-47-4	
Hexachloroethane	Not detected	5		ug/L	2	67-72-1	
Indeno(1,2,3-cd)pyrene	Not detected	2		ug/L	2	193-39-5	
Isophorone	Not detected	5		ug/L	2	78-59-1	
2-Methylnaphthalene	Not detected	5		ug/L	2	91-57-6	
Naphthalene	Not detected	5		ug/L	2	91-20-3	
2-Nitroaniline	Not detected	25		ug/L	2	88-74-4	
3-Nitroaniline	Not detected	25		ug/L	2	99-09-2	
4-Nitroaniline	Not detected	25		ug/L	2	100-01-6	
Nitrobenzene	Not detected	5		ug/L	2	98-95-3	
2-Nitrophenol	Not detected	5		ug/L	2	88-75-5	
4-Nitrophenol	Not detected	25		ug/L	2	100-02-7	
N-Nitrosodiphenylamine	Not detected	5		ug/L	2	86-30-6	
N-Nitrosodi-n-propylamine	Not detected	5		ug/L	2	621-64-7	
Pentachlorophenol	Not detected	5		ug/L	2	87-86-5	
Phenanthrene	Not detected	2		ug/L	2	85-01-8	
Phenol	Not detected	5		ug/L	2	108-95-2	
Pyrene	Not detected	5		ug/L	2	129-00-0	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	2	120-82-1	
2,4,5-Trichlorophenol	Not detected	5		ug/L	2	95-95-4	
2,4,6-Trichlorophenol	Not detected	4		ug/L	2	88-06-2	

Analytical Laboratory Report

Lab Sample ID: S62361.26
Sample Tag: Trip Blank
Collected Date/Time: 05/21/2024 00:01
Matrix: Water
COC Reference: 2

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40mL Glass	HCL	Yes	5.1	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/24/24 12:00	NDK	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/23/24 14:40, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	

Lab Sample ID: S62361.26 (continued)
Sample Tag: Trip Blank

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/23/24 14:40, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Quality Control Report

Report ID: S62361.01(01)+QC01
Generated on 05/30/2024

Report to

Attention: Kaitlyn Hunt
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 C:947-777-5215 FAX:

Report Produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S62361.01-S62361.26
Project: 30214036.0470A / RACER Lansing GWS
Submitted Date/Time: 05/22/2024 13:45
Sampled by: Austin Westhuis / Billy Cobern
P.O. #: US3460016166

QC Report Sections

Cover Page (Page 40)
Analysis Summary (Pages 41-66)
Prep Batch Summary (Pages 67-69)
Surrogates per Lab Sample (Pages 70-77)
Surrogates per QC Sample (Pages 78-81)
Internal Standards per Lab Sample (Pages 82-102)
Internal Standards per QC Sample (Pages 103-106)
Batch QC Results (Pages 107-120)

Report Flag Descriptions

*: QC result is outside of indicated control limits
W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.

Barbara Ball
Quality Assurance Manager

Lab Sample ID: S62361.01
Sample Tag: MW-13-41_052124
Collected Date/Time: 05/21/2024 11:15
Matrix: Groundwater
COC Reference: 1

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	05/23/24 19:06	240523A9	VF240523W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S62361.02
Sample Tag: MW-15-71_052124
Collected Date/Time: 05/21/2024 12:35
Matrix: Groundwater
COC Reference: 1

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/23/24 19:40	K240523B	VS240523W3	Yes	BLK/LCS/LCSD

Lab Sample ID: S62361.03
Sample Tag: MW-14-64_052124
Collected Date/Time: 05/21/2024 14:00
Matrix: Groundwater
COC Reference: 1

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/23/24 20:05	K240523B	VS240523W3	Yes	BLK/LCS/LCSD

Lab Sample ID: S62361.04
Sample Tag: MW-13-49_052124
Collected Date/Time: 05/21/2024 15:30
Matrix: Groundwater
COC Reference: 1

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/23/24 20:29	K240523B	VS240523W3	Yes	BLK/LCS/LCSD

Lab Sample ID: S62361.05

Sample Tag: MW-13-46_052124

Collected Date/Time: 05/21/2024 16:40

Matrix: Groundwater

COC Reference: 1

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/23/24 20:54	K240523B	VS240523W3	Yes	BLK/LCS/LCSD

Lab Sample ID: S62361.06
Sample Tag: MW-12-20_052124
Collected Date/Time: 05/21/2024 17:45
Matrix: Groundwater
COC Reference: 1

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/23/24 21:18	K240523B	VS240523W3	Yes	BLK/LCS/LCSD

Lab Sample ID: S62361.07
Sample Tag: MW-05(3)_052124
Collected Date/Time: 05/21/2024 17:50
Matrix: Groundwater
COC Reference: 1

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	05/23/24 19:29	240523A9	VF240523W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S62361.08
Sample Tag: MW-02-04(3)_052124
Collected Date/Time: 05/21/2024 11:00
Matrix: Groundwater
COC Reference: 1

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Metals						
Arsenic, Dissolved	E200.8	05/29/24 13:30	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Arsenic	E200.8	05/29/24 13:22	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Chromium, Dissolved	E200.8	05/29/24 13:30	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Chromium	E200.8	05/29/24 13:22	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Copper, Dissolved	E200.8	05/29/24 13:30	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Copper	E200.8	05/29/24 13:22	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Lead, Dissolved	E200.8	05/29/24 13:30	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Lead	E200.8	05/29/24 13:22	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Nickel, Dissolved	E200.8	05/29/24 13:30	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Nickel	E200.8	05/29/24 13:22	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Vanadium, Dissolved	E200.8	05/29/24 13:30	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Vanadium	E200.8	05/29/24 13:22	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/23/24 21:43	K240523B	VS240523W3	Yes	BLK/LCS/LCSD

Lab Sample ID: S62361.09
Sample Tag: MW-18-101_052124
Collected Date/Time: 05/21/2024 15:50
Matrix: Groundwater
COC Reference: 1

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/23/24 22:08	K240523B	VS240523W3	Yes	BLK/LCS/LCSD

Lab Sample ID: S62361.10

Sample Tag: MW-13-32_052224

Collected Date/Time: 05/22/2024 11:00

Matrix: Groundwater

COC Reference: 1

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Metals						
Arsenic	E200.8	05/29/24 13:32	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Chromium	E200.8	05/29/24 13:32	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Copper	E200.8	05/29/24 13:32	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Lead	E200.8	05/29/24 13:32	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Nickel	E200.8	05/29/24 13:32	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Vanadium	E200.8	05/29/24 13:32	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Organics - Semi-Volatiles						
Semi-Volatile Organics - MDEQ	SW8270D	05/29/24 16:34	P240529	SF240528W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S62361.11

Sample Tag: DUP-05_052224

Collected Date/Time: 05/22/2024 00:01

Matrix: Groundwater

COC Reference: 1

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Metals						
Arsenic	E200.8	05/29/24 13:34	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Chromium	E200.8	05/29/24 13:34	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Copper	E200.8	05/29/24 13:34	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Lead	E200.8	05/29/24 13:34	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Nickel	E200.8	05/29/24 13:34	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Vanadium	E200.8	05/29/24 13:34	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Organics - Semi-Volatiles						
Semi-Volatile Organics - MDEQ	SW8270D	05/29/24 17:04	P240529	SF240528W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S62361.12
Sample Tag: P3-SB-28_052224
Collected Date/Time: 05/22/2024 12:00
Matrix: Groundwater
COC Reference: 1

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Semi-Volatiles						
Semi-Volatile Organics - MDEQ	SW8270D	05/29/24 17:35	P240529	SF240528W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S62361.13
Sample Tag: MW-13-23_052124
Collected Date/Time: 05/21/2024 10:50
Matrix: Groundwater
COC Reference: 2

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/23/24 22:32	K240523B	VS240523W3	Yes	BLK/LCS/LCSD

Lab Sample ID: S62361.14
Sample Tag: MW-13-23_052124 MS
Collected Date/Time: 05/21/2024 10:50
Matrix: Groundwater
COC Reference: 2

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/24/24 00:59	K240523B	VS240523W3	Yes	BLK/LCS/LCSD

Lab Sample ID: S62361.15

Sample Tag: MW-13-23_052124 MSD

Collected Date/Time: 05/21/2024 10:50

Matrix: Groundwater

COC Reference: 2

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/24/24 01:23	K240523B	VS240523W3	Yes	BLK/LCS/LCSD

Lab Sample ID: S62361.16

Sample Tag: MW-02-02(3)_052124

Collected Date/Time: 05/21/2024 12:35

Matrix: Groundwater

COC Reference: 2

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/23/24 22:57	K240523B	VS240523W3	Yes	BLK/LCS/LCSD

Lab Sample ID: S62361.17
Sample Tag: MW-13-25_052124
Collected Date/Time: 05/21/2024 13:50
Matrix: Groundwater
COC Reference: 2

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/23/24 23:21	K240523B	VS240523W3	Yes	BLK/LCS/LCSD

Lab Sample ID: S62361.18
Sample Tag: MW-13-24_052124
Collected Date/Time: 05/21/2024 15:15
Matrix: Groundwater
COC Reference: 2

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/23/24 23:45	K240523B	VS240523W3	Yes	BLK/LCS/LCSD

Lab Sample ID: S62361.19
Sample Tag: MW-91-2R_052224
Collected Date/Time: 05/22/2024 09:35
Matrix: Groundwater
COC Reference: 2

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Inorganics						
Chromium VI	SM3500-Cr B	05/22/24 16:20	CHR240522-W1	CHR240522-W1	No	BLK/LCS/MS/MSD/DU
Metals						
Arsenic	E200.8	05/29/24 13:37	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Chromium	E200.8	05/29/24 13:37	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Copper	E200.8	05/29/24 13:37	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Lead	E200.8	05/29/24 13:37	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Nickel	E200.8	05/29/24 13:37	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Vanadium	E200.8	05/29/24 13:37	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/24/24 00:10	K240523B	VS240523W3	Yes	BLK/LCS/LCSD

Lab Sample ID: S62361.20

Sample Tag: DUP-09_052224

Collected Date/Time: 05/22/2024 00:01

Matrix: Groundwater

COC Reference: 2

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Inorganics						
Chromium VI	SM3500-Cr B	05/22/24 16:30	CHR240522-W1	CHR240522-W1	No	BLK/LCS/MS/MSD/DU
Metals						
Arsenic	E200.8	05/29/24 13:39	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Chromium	E200.8	05/29/24 13:39	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Copper	E200.8	05/29/24 13:39	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Lead	E200.8	05/29/24 13:39	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Nickel	E200.8	05/29/24 13:39	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Vanadium	E200.8	05/29/24 13:39	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/24/24 00:34	K240523B	VS240523W3	Yes	BLK/LCS/LCSD

Lab Sample ID: S62361.21
Sample Tag: CH-14-RO_052224
Collected Date/Time: 05/22/2024 10:40
Matrix: Groundwater
COC Reference: 2

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Inorganics						
Chromium VI	SM3500-Cr B	05/22/24 16:35	CHR240522-W1	CHR240522-W1	No	BLK/LCS/MS/MSD/DU
Metals						
Arsenic	E200.8	05/29/24 13:41	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Chromium	E200.8	05/29/24 13:46	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Copper	E200.8	05/29/24 13:41	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Lead	E200.8	05/29/24 13:41	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Nickel	E200.8	05/29/24 13:41	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Vanadium	E200.8	05/29/24 13:41	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD

Lab Sample ID: S62361.22

Sample Tag: CH-14-RO_052224 MS

Collected Date/Time: 05/22/2024 10:40

Matrix: Groundwater

COC Reference: 2

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Inorganics						
Chromium VI	SM3500-Cr B	05/22/24 16:40	CHR240522-W1	CHR240522-W1	No	BLK/LCS/MS/MSD/DU
Metals						
Arsenic	E200.8	05/29/24 13:55	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Chromium	E200.8	05/29/24 13:55	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Copper	E200.8	05/29/24 13:55	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Lead	E200.8	05/29/24 13:55	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Nickel	E200.8	05/29/24 13:55	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Vanadium	E200.8	05/29/24 13:55	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD

Lab Sample ID: S62361.23
Sample Tag: CH-14-RO_052224 MSD
Collected Date/Time: 05/22/2024 10:40
Matrix: Groundwater
COC Reference: 2

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Inorganics						
Chromium VI	SM3500-Cr B	05/22/24 16:45	CHR240522-W1	CHR240522-W1	No	BLK/LCS/MS/MSD/DU
Metals						
Arsenic	E200.8	05/29/24 13:56	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Chromium	E200.8	05/29/24 13:56	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Copper	E200.8	05/29/24 13:56	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Lead	E200.8	05/29/24 13:56	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Nickel	E200.8	05/29/24 13:56	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Vanadium	E200.8	05/29/24 13:56	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD

Lab Sample ID: S62361.24
Sample Tag: MW-18-88_052224
Collected Date/Time: 05/22/2024 11:50
Matrix: Groundwater
COC Reference: 2

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Inorganics						
Chromium VI	SM3500-Cr B	05/22/24 16:50	CHR240522-W1	CHR240522-W1	No	BLK/LCS/MS/MSD/DU
Metals						
Arsenic	E200.8	05/29/24 13:49	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Chromium	E200.8	05/29/24 13:49	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Copper	E200.8	05/29/24 13:49	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Lead	E200.8	05/29/24 13:49	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Nickel	E200.8	05/29/24 13:49	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Vanadium	E200.8	05/29/24 13:49	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	05/23/24 19:53	240523A9	VF240523W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S62361.25

Sample Tag: UNK-11_052224

Collected Date/Time: 05/22/2024 12:55

Matrix: Groundwater

COC Reference: 2

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Semi-Volatiles						
Semi-Volatile Organics - MDEQ	SW8270D	05/29/24 18:05	P240529	SF240528W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S62361.26

Sample Tag: Trip Blank

Collected Date/Time: 05/21/2024 00:01

Matrix: Water

COC Reference: 2

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	05/23/24 14:40	240523A9	VF240523W1	Yes	BLK/LCS/LCSD

Inorganics, Prep Batch ID: CHR240522-W1

Surrogates: No, QC Types: BLK/LCS/MS/MSD/DUP

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S62361.19	Chromium VI	SM3500-Cr B	05/22/24 16:20	CHR240522-W1
S62361.20	Chromium VI	SM3500-Cr B	05/22/24 16:30	CHR240522-W1
S62361.21	Chromium VI	SM3500-Cr B	05/22/24 16:35	CHR240522-W1
S62361.22	Chromium VI	SM3500-Cr B	05/22/24 16:40	CHR240522-W1
S62361.23	Chromium VI	SM3500-Cr B	05/22/24 16:45	CHR240522-W1
S62361.24	Chromium VI	SM3500-Cr B	05/22/24 16:50	CHR240522-W1

Metals, Prep Batch ID: MTD-052924-4

Surrogates: No, QC Types: BLK/LCS/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S62361.08	Arsenic, Dissolved	E200.8	05/29/24 13:30	MT4-24-0529B
S62361.08	Arsenic	E200.8	05/29/24 13:22	MT4-24-0529B
S62361.08	Chromium, Dissolved	E200.8	05/29/24 13:30	MT4-24-0529B
S62361.08	Chromium	E200.8	05/29/24 13:22	MT4-24-0529B
S62361.08	Copper, Dissolved	E200.8	05/29/24 13:30	MT4-24-0529B
S62361.08	Copper	E200.8	05/29/24 13:22	MT4-24-0529B
S62361.08	Lead, Dissolved	E200.8	05/29/24 13:30	MT4-24-0529B
S62361.08	Lead	E200.8	05/29/24 13:22	MT4-24-0529B
S62361.08	Nickel, Dissolved	E200.8	05/29/24 13:30	MT4-24-0529B
S62361.08	Nickel	E200.8	05/29/24 13:22	MT4-24-0529B
S62361.08	Vanadium, Dissolved	E200.8	05/29/24 13:30	MT4-24-0529B
S62361.08	Vanadium	E200.8	05/29/24 13:22	MT4-24-0529B
S62361.10	Arsenic	E200.8	05/29/24 13:32	MT4-24-0529B
S62361.10	Chromium	E200.8	05/29/24 13:32	MT4-24-0529B
S62361.10	Copper	E200.8	05/29/24 13:32	MT4-24-0529B
S62361.10	Lead	E200.8	05/29/24 13:32	MT4-24-0529B
S62361.10	Nickel	E200.8	05/29/24 13:32	MT4-24-0529B
S62361.10	Vanadium	E200.8	05/29/24 13:32	MT4-24-0529B
S62361.11	Arsenic	E200.8	05/29/24 13:34	MT4-24-0529B
S62361.11	Chromium	E200.8	05/29/24 13:34	MT4-24-0529B
S62361.11	Copper	E200.8	05/29/24 13:34	MT4-24-0529B
S62361.11	Lead	E200.8	05/29/24 13:34	MT4-24-0529B
S62361.11	Nickel	E200.8	05/29/24 13:34	MT4-24-0529B
S62361.11	Vanadium	E200.8	05/29/24 13:34	MT4-24-0529B
S62361.19	Arsenic	E200.8	05/29/24 13:37	MT4-24-0529B
S62361.19	Chromium	E200.8	05/29/24 13:37	MT4-24-0529B
S62361.19	Copper	E200.8	05/29/24 13:37	MT4-24-0529B
S62361.19	Lead	E200.8	05/29/24 13:37	MT4-24-0529B
S62361.19	Nickel	E200.8	05/29/24 13:37	MT4-24-0529B
S62361.19	Vanadium	E200.8	05/29/24 13:37	MT4-24-0529B
S62361.20	Arsenic	E200.8	05/29/24 13:39	MT4-24-0529B
S62361.20	Chromium	E200.8	05/29/24 13:39	MT4-24-0529B
S62361.20	Copper	E200.8	05/29/24 13:39	MT4-24-0529B
S62361.20	Lead	E200.8	05/29/24 13:39	MT4-24-0529B
S62361.20	Nickel	E200.8	05/29/24 13:39	MT4-24-0529B
S62361.20	Vanadium	E200.8	05/29/24 13:39	MT4-24-0529B
S62361.21	Arsenic	E200.8	05/29/24 13:41	MT4-24-0529B
S62361.21	Chromium	E200.8	05/29/24 13:46	MT4-24-0529B
S62361.21	Copper	E200.8	05/29/24 13:41	MT4-24-0529B
S62361.21	Lead	E200.8	05/29/24 13:41	MT4-24-0529B

Metals, Prep Batch ID: MTD-052924-4 (continued)

Surrogates: No, QC Types: BLK/LCS/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S62361.21	Nickel	E200.8	05/29/24 13:41	MT4-24-0529B
S62361.21	Vanadium	E200.8	05/29/24 13:41	MT4-24-0529B
S62361.22	Arsenic	E200.8	05/29/24 13:55	MT4-24-0529B
S62361.22	Chromium	E200.8	05/29/24 13:55	MT4-24-0529B
S62361.22	Copper	E200.8	05/29/24 13:55	MT4-24-0529B
S62361.22	Lead	E200.8	05/29/24 13:55	MT4-24-0529B
S62361.22	Nickel	E200.8	05/29/24 13:55	MT4-24-0529B
S62361.22	Vanadium	E200.8	05/29/24 13:55	MT4-24-0529B
S62361.23	Arsenic	E200.8	05/29/24 13:56	MT4-24-0529B
S62361.23	Chromium	E200.8	05/29/24 13:56	MT4-24-0529B
S62361.23	Copper	E200.8	05/29/24 13:56	MT4-24-0529B
S62361.23	Lead	E200.8	05/29/24 13:56	MT4-24-0529B
S62361.23	Nickel	E200.8	05/29/24 13:56	MT4-24-0529B
S62361.23	Vanadium	E200.8	05/29/24 13:56	MT4-24-0529B
S62361.24	Arsenic	E200.8	05/29/24 13:49	MT4-24-0529B
S62361.24	Chromium	E200.8	05/29/24 13:49	MT4-24-0529B
S62361.24	Copper	E200.8	05/29/24 13:49	MT4-24-0529B
S62361.24	Lead	E200.8	05/29/24 13:49	MT4-24-0529B
S62361.24	Nickel	E200.8	05/29/24 13:49	MT4-24-0529B
S62361.24	Vanadium	E200.8	05/29/24 13:49	MT4-24-0529B

Organics - Semi-Volatiles, Prep Batch ID: SF240528W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S62361.10	Semi-Volatile Organics - MDEQ	SW8270D	05/29/24 16:34	P240529
S62361.11	Semi-Volatile Organics - MDEQ	SW8270D	05/29/24 17:04	P240529
S62361.12	Semi-Volatile Organics - MDEQ	SW8270D	05/29/24 17:35	P240529
S62361.25	Semi-Volatile Organics - MDEQ	SW8270D	05/29/24 18:05	P240529

Organics - Volatiles, Prep Batch ID: VF240523W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S62361.01	Volatile Organics - DEQ List	SW5030C/8260C	05/23/24 19:06	240523A9
S62361.07	Volatile Organics - DEQ List	SW5030C/8260C	05/23/24 19:29	240523A9
S62361.24	Volatile Organics - DEQ List	SW5030C/8260C	05/23/24 19:53	240523A9
S62361.26	Volatile Organics - DEQ List	SW5030C/8260C	05/23/24 14:40	240523A9

Organics - Volatiles, Prep Batch ID: VS240523W3

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S62361.02	1,4-Dioxane	SW8260B - SIM	05/23/24 19:40	K240523B
S62361.03	1,4-Dioxane	SW8260B - SIM	05/23/24 20:05	K240523B
S62361.04	1,4-Dioxane	SW8260B - SIM	05/23/24 20:29	K240523B
S62361.05	1,4-Dioxane	SW8260B - SIM	05/23/24 20:54	K240523B
S62361.06	1,4-Dioxane	SW8260B - SIM	05/23/24 21:18	K240523B
S62361.08	1,4-Dioxane	SW8260B - SIM	05/23/24 21:43	K240523B
S62361.09	1,4-Dioxane	SW8260B - SIM	05/23/24 22:08	K240523B
S62361.13	1,4-Dioxane	SW8260B - SIM	05/23/24 22:32	K240523B
S62361.14	1,4-Dioxane	SW8260B - SIM	05/24/24 00:59	K240523B

Organics - Volatiles, Prep Batch ID: VS240523W3 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S62361.15	1,4-Dioxane	SW8260B - SIM	05/24/24 01:23	K240523B
S62361.16	1,4-Dioxane	SW8260B - SIM	05/23/24 22:57	K240523B
S62361.17	1,4-Dioxane	SW8260B - SIM	05/23/24 23:21	K240523B
S62361.18	1,4-Dioxane	SW8260B - SIM	05/23/24 23:45	K240523B
S62361.19	1,4-Dioxane	SW8260B - SIM	05/24/24 00:10	K240523B
S62361.20	1,4-Dioxane	SW8260B - SIM	05/24/24 00:34	K240523B

QC Report - Surrogates per Lab Sample

Lab Sample ID: S62361.01

Sample Tag: MW-13-41_052124

Collected Date/Time: 05/21/2024 11:15

Matrix: Groundwater

COC Reference: 1

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240523A9, Run Date: 05/23/2024 19:06, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**108.9**	80.0	124.0
1,2-Dichloroethane-D4		**94.6**	72.0	125.0
Toluene-D8		**93.4**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S62361.07

Sample Tag: MW-05(3)_052124

Collected Date/Time: 05/21/2024 17:50

Matrix: Groundwater

COC Reference: 1

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240523A9, Run Date: 05/23/2024 19:29, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**108.9**	80.0	124.0
1,2-Dichloroethane-D4		**91.8**	72.0	125.0
Toluene-D8		**92.6**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S62361.10

Sample Tag: MW-13-32_052224

Collected Date/Time: 05/22/2024 11:00

Matrix: Groundwater

COC Reference: 1

Organics - Semi-Volatiles, Analysis: Semi-Volatile Organics - MDEQ

Run in Batch: P240529, Run Date: 05/29/2024 16:34, Matrix: WW, Dilution: 2

Surrogate	Flags	**%Rec**	LCL	UCL
2-Fluorophenol		**27.1**	10.0	110.0
Phenol-D5		**20.7**	10.0	110.0
Nitrobenzene-D5		**60.9**	10.0	114.0
2-Fluorobiphenyl		**62.4**	10.0	116.0
2,4,6-Tribromophenol		**59.7**	10.0	123.0
Terphenyl-D14		**64.8**	10.0	141.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S62361.11

Sample Tag: DUP-05_052224

Collected Date/Time: 05/22/2024 00:01

Matrix: Groundwater

COC Reference: 1

Organics - Semi-Volatiles, Analysis: Semi-Volatile Organics - MDEQ

Run in Batch: P240529, Run Date: 05/29/2024 17:04, Matrix: WW, Dilution: 2

Surrogate	Flags	%Rec	LCL	UCL
2-Fluorophenol		**26.7**	10.0	110.0
Phenol-D5		**20.2**	10.0	110.0
Nitrobenzene-D5		**57.6**	10.0	114.0
2-Fluorobiphenyl		**60.5**	10.0	116.0
2,4,6-Tribromophenol		**59.0**	10.0	123.0
Terphenyl-D14		**67.5**	10.0	141.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S62361.12

Sample Tag: P3-SB-28_052224

Collected Date/Time: 05/22/2024 12:00

Matrix: Groundwater

COC Reference: 1

Organics - Semi-Volatiles, Analysis: Semi-Volatile Organics - MDEQ

Run in Batch: P240529, Run Date: 05/29/2024 17:35, Matrix: WW, Dilution: 2

Surrogate	Flags	**%Rec**	LCL	UCL
2-Fluorophenol		**26.7**	10.0	110.0
Phenol-D5		**19.7**	10.0	110.0
Nitrobenzene-D5		**60.1**	10.0	114.0
2-Fluorobiphenyl		**59.4**	10.0	116.0
2,4,6-Tribromophenol		**55.3**	10.0	123.0
Terphenyl-D14		**61.2**	10.0	141.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S62361.24

Sample Tag: MW-18-88_052224

Collected Date/Time: 05/22/2024 11:50

Matrix: Groundwater

COC Reference: 2

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240523A9, Run Date: 05/23/2024 19:53, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**108.1**	80.0	124.0
1,2-Dichloroethane-D4		**94.2**	72.0	125.0
Toluene-D8		**93.1**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S62361.25

Sample Tag: UNK-11_052224

Collected Date/Time: 05/22/2024 12:55

Matrix: Groundwater

COC Reference: 2

Organics - Semi-Volatiles, Analysis: Semi-Volatile Organics - MDEQ

Run in Batch: P240529, Run Date: 05/29/2024 18:05, Matrix: WW, Dilution: 2

Surrogate	Flags	**%Rec**	LCL	UCL
2-Fluorophenol		**26.8**	10.0	110.0
Phenol-D5		**19.7**	10.0	110.0
Nitrobenzene-D5		**61.3**	10.0	114.0
2-Fluorobiphenyl		**61.6**	10.0	116.0
2,4,6-Tribromophenol		**58.3**	10.0	123.0
Terphenyl-D14		**67.0**	10.0	141.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S62361.26

Sample Tag: Trip Blank

Collected Date/Time: 05/21/2024 00:01

Matrix: Water

COC Reference: 2

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240523A9, Run Date: 05/23/2024 14:40, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**108.9**	80.0	124.0
1,2-Dichloroethane-D4		**87.5**	72.0	125.0
Toluene-D8		**92.0**	89.0	112.0

Organics - Semi-Volatiles, Prep Batch ID: SF240528W1

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: H240529.BLKW28A

Run in Batch: H240529, Run Date: 05/29/2024 11:34, Prep Date: 05/28/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
2-Fluorobiphenyl		**48.3**	10.0	116.0

Blank (BLK)

Lab Sample ID: P240529.BLKW28A

Run in Batch: P240529, Run Date: 05/29/2024 10:58, Prep Date: 05/28/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
2-Fluorophenol		**27.7**	10.0	110.0
Phenol-D5		**22.8**	10.0	110.0
Nitrobenzene-D5		**46.2**	10.0	114.0
2-Fluorobiphenyl		**45.4**	10.0	116.0
2,4,6-Tribromophenol		**45.2**	10.0	123.0
Terphenyl-D14		**51.3**	10.0	141.0

Laboratory Control Sample (LCS)

Lab Sample ID: H240529.LCSW28A

Run in Batch: H240529, Run Date: 05/29/2024 11:51, Prep Date: 05/28/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
2-Fluorobiphenyl		**61.8**	10.0	116.0

Laboratory Control Sample (LCS)

Lab Sample ID: P240529.LCSW28A

Run in Batch: P240529, Run Date: 05/29/2024 11:29, Prep Date: 05/28/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
2-Fluorophenol		**32.5**	10.0	110.0
Phenol-D5		**26.3**	10.0	110.0
Nitrobenzene-D5		**51.7**	10.0	114.0
2-Fluorobiphenyl		**54.1**	10.0	116.0
2,4,6-Tribromophenol		**54.7**	10.0	123.0
Terphenyl-D14		**58.8**	10.0	141.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: H240529.LCSDW28A, Parent Sample ID: H240529.LCSW28A

Run in Batch: H240529, Run Date: 05/29/2024 12:08, Prep Date: 05/28/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
2-Fluorobiphenyl		**57.7**	10.0	116.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: P240529.LCSDW28A, Parent Sample ID: P240529.LCSW28A

Run in Batch: P240529, Run Date: 05/29/2024 11:59, Prep Date: 05/28/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
2-Fluorophenol		**33.2**	10.0	110.0
Phenol-D5		**27.8**	10.0	110.0
Nitrobenzene-D5		**54.4**	10.0	114.0
2-Fluorobiphenyl		**55.0**	10.0	116.0
2,4,6-Tribromophenol		**57.1**	10.0	123.0
Terphenyl-D14		**59.3**	10.0	141.0

Organics - Volatiles, Prep Batch ID: VF240523W1

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240523A9.BLKW23A

Run in Batch: 240523A9, Run Date: 05/23/2024 13:52, Prep Date: 05/23/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**108.5**	80.0	124.0
1,2-Dichloroethane-D4		**85.3**	72.0	125.0
Toluene-D8		**92.8**	89.0	112.0

Laboratory Control Sample (LCS)

Lab Sample ID: 240523A9.LCSW23A

Run in Batch: 240523A9, Run Date: 05/23/2024 12:17, Prep Date: 05/23/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**107.7**	80.0	124.0
1,2-Dichloroethane-D4		**88.0**	72.0	125.0
Toluene-D8		**93.1**	89.0	112.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240523A9.LCSDW23A, Parent Sample ID: 240523A9.LCSW23A

Run in Batch: 240523A9, Run Date: 05/23/2024 12:41, Prep Date: 05/23/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**107.3**	80.0	124.0
1,2-Dichloroethane-D4		**83.1**	72.0	125.0
Toluene-D8		**93.2**	89.0	112.0

Organics - Volatiles, Prep Batch ID: VS240523W3

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: K240523B.BLK23B

Run in Batch: K240523B, Run Date: 05/23/2024 19:16, Prep Date: 05/23/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample (LCS)

Lab Sample ID: K240523B.LCS23B

Run in Batch: K240523B, Run Date: 05/23/2024 17:38, Prep Date: 05/23/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: K240523B.LCSD23B, Parent Sample ID: K240523B.LCS23B

Run in Batch: K240523B, Run Date: 05/23/2024 18:02, Prep Date: 05/23/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62361.01

Sample Tag: MW-13-41_052124

Collected Date/Time: 05/21/2024 11:15

Matrix: Groundwater

COC Reference: 1

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240523A9, Run Date: 05/23/2024 19:06, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**90.0**	50.0	200.0
1,4-Difluorobenzene		**93.7**	50.0	200.0
Chlorobenzene-D5		**93.9**	50.0	200.0
1,4-Dichlorobenzene-D4		**92.5**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62361.02

Sample Tag: MW-15-71_052124

Collected Date/Time: 05/21/2024 12:35

Matrix: Groundwater

COC Reference: 1

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240523B, Run Date: 05/23/2024 19:40, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**92.2**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62361.03

Sample Tag: MW-14-64_052124

Collected Date/Time: 05/21/2024 14:00

Matrix: Groundwater

COC Reference: 1

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240523B, Run Date: 05/23/2024 20:05, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**87.7**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62361.04

Sample Tag: MW-13-49_052124

Collected Date/Time: 05/21/2024 15:30

Matrix: Groundwater

COC Reference: 1

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240523B, Run Date: 05/23/2024 20:29, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**82.6**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62361.05

Sample Tag: MW-13-46_052124

Collected Date/Time: 05/21/2024 16:40

Matrix: Groundwater

COC Reference: 1

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240523B, Run Date: 05/23/2024 20:54, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**96.3**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62361.06

Sample Tag: MW-12-20_052124

Collected Date/Time: 05/21/2024 17:45

Matrix: Groundwater

COC Reference: 1

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240523B, Run Date: 05/23/2024 21:18, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**78.4**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62361.07

Sample Tag: MW-05(3)_052124

Collected Date/Time: 05/21/2024 17:50

Matrix: Groundwater

COC Reference: 1

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240523A9, Run Date: 05/23/2024 19:29, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**91.8**	50.0	200.0
1,4-Difluorobenzene		**95.5**	50.0	200.0
Chlorobenzene-D5		**94.2**	50.0	200.0
1,4-Dichlorobenzene-D4		**93.0**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62361.08

Sample Tag: MW-02-04(3)_052124

Collected Date/Time: 05/21/2024 11:00

Matrix: Groundwater

COC Reference: 1

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240523B, Run Date: 05/23/2024 21:43, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**81.8**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62361.09

Sample Tag: MW-18-101_052124

Collected Date/Time: 05/21/2024 15:50

Matrix: Groundwater

COC Reference: 1

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240523B, Run Date: 05/23/2024 22:08, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**72.8**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62361.10

Sample Tag: MW-13-32_052224

Collected Date/Time: 05/22/2024 11:00

Matrix: Groundwater

COC Reference: 1

Organics - Semi-Volatiles, Analysis: Semi-Volatile Organics - MDEQ

Run in Batch: P240529, Run Date: 05/29/2024 16:34, Matrix: WW, Dilution: 2

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dichlorobenzene-D4		**99.2**	50.0	200.0
Naphthalene-D8		**97.2**	50.0	200.0
Acenaphthalene-D10		**98.3**	50.0	200.0
Phenanthrene-D10		**97.7**	50.0	200.0
Chrysene-D12		**99.3**	50.0	200.0
Perylene-D12		**99.8**	50.0	200.0

Lab Sample ID: S62361.11

Sample Tag: DUP-05_052224

Collected Date/Time: 05/22/2024 00:01

Matrix: Groundwater

COC Reference: 1

Organics - Semi-Volatiles, Analysis: Semi-Volatile Organics - MDEQ

Run in Batch: P240529, Run Date: 05/29/2024 17:04, Matrix: WW, Dilution: 2

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dichlorobenzene-D4		**98.3**	50.0	200.0
Naphthalene-D8		**99.2**	50.0	200.0
Acenaphthalene-D10		**99.2**	50.0	200.0
Phenanthrene-D10		**98.0**	50.0	200.0
Chrysene-D12		**100.4**	50.0	200.0
Perylene-D12		**102.3**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62361.12

Sample Tag: P3-SB-28_052224

Collected Date/Time: 05/22/2024 12:00

Matrix: Groundwater

COC Reference: 1

Organics - Semi-Volatiles, Analysis: Semi-Volatile Organics - MDEQ

Run in Batch: P240529, Run Date: 05/29/2024 17:35, Matrix: WW, Dilution: 2

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dichlorobenzene-D4		**124.6**	50.0	200.0
Naphthalene-D8		**124.0**	50.0	200.0
Acenaphthalene-D10		**127.4**	50.0	200.0
Phenanthrene-D10		**123.7**	50.0	200.0
Chrysene-D12		**126.8**	50.0	200.0
Perylene-D12		**129.5**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62361.13

Sample Tag: MW-13-23_052124

Collected Date/Time: 05/21/2024 10:50

Matrix: Groundwater

COC Reference: 2

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240523B, Run Date: 05/23/2024 22:32, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**75.5**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62361.16

Sample Tag: MW-02-02(3)_052124

Collected Date/Time: 05/21/2024 12:35

Matrix: Groundwater

COC Reference: 2

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240523B, Run Date: 05/23/2024 22:57, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**84.1**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62361.17

Sample Tag: MW-13-25_052124

Collected Date/Time: 05/21/2024 13:50

Matrix: Groundwater

COC Reference: 2

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240523B, Run Date: 05/23/2024 23:21, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**89.1**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62361.18

Sample Tag: MW-13-24_052124

Collected Date/Time: 05/21/2024 15:15

Matrix: Groundwater

COC Reference: 2

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240523B, Run Date: 05/23/2024 23:45, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**77.1**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62361.19

Sample Tag: MW-91-2R_052224

Collected Date/Time: 05/22/2024 09:35

Matrix: Groundwater

COC Reference: 2

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240523B, Run Date: 05/24/2024 00:10, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**80.1**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62361.20

Sample Tag: DUP-09_052224

Collected Date/Time: 05/22/2024 00:01

Matrix: Groundwater

COC Reference: 2

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240523B, Run Date: 05/24/2024 00:34, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**80.5**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62361.24

Sample Tag: MW-18-88_052224

Collected Date/Time: 05/22/2024 11:50

Matrix: Groundwater

COC Reference: 2

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240523A9, Run Date: 05/23/2024 19:53, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**90.1**	50.0	200.0
1,4-Difluorobenzene		**94.0**	50.0	200.0
Chlorobenzene-D5		**94.1**	50.0	200.0
1,4-Dichlorobenzene-D4		**90.6**	50.0	200.0

Lab Sample ID: S62361.25

Sample Tag: UNK-11_052224

Collected Date/Time: 05/22/2024 12:55

Matrix: Groundwater

COC Reference: 2

Organics - Semi-Volatiles, Analysis: Semi-Volatile Organics - MDEQ

Run in Batch: P240529, Run Date: 05/29/2024 18:05, Matrix: WW, Dilution: 2

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dichlorobenzene-D4		**111.0**	50.0	200.0
Naphthalene-D8		**110.5**	50.0	200.0
Acenaphthalene-D10		**113.7**	50.0	200.0
Phenanthrene-D10		**110.4**	50.0	200.0
Chrysene-D12		**113.7**	50.0	200.0
Perylene-D12		**116.9**	50.0	200.0

Lab Sample ID: S62361.26

Sample Tag: Trip Blank

Collected Date/Time: 05/21/2024 00:01

Matrix: Water

COC Reference: 2

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240523A9, Run Date: 05/23/2024 14:40, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**94.7**	50.0	200.0
1,4-Difluorobenzene		**97.2**	50.0	200.0
Chlorobenzene-D5		**94.1**	50.0	200.0
1,4-Dichlorobenzene-D4		**91.3**	50.0	200.0

Organics - Semi-Volatiles, Prep Batch ID: SF240528W1

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: H240529.BLKW28A

Run in Batch: H240529, Run Date: 05/29/2024 11:34, Prep Date: 05/28/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Acenaphthalene-D10		**106.4**	50.0	200.0

Blank (BLK)

Lab Sample ID: P240529.BLKW28A

Run in Batch: P240529, Run Date: 05/29/2024 10:58, Prep Date: 05/28/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dichlorobenzene-D4		**123.7**	50.0	200.0
Naphthalene-D8		**123.9**	50.0	200.0
Acenaphthalene-D10		**124.5**	50.0	200.0
Phenanthrene-D10		**117.2**	50.0	200.0
Chrysene-D12		**113.5**	50.0	200.0
Perylene-D12		**116.0**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: H240529.LCSW28A

Run in Batch: H240529, Run Date: 05/29/2024 11:51, Prep Date: 05/28/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Acenaphthalene-D10		**92.5**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: P240529.LCSW28A

Run in Batch: P240529, Run Date: 05/29/2024 11:29, Prep Date: 05/28/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dichlorobenzene-D4		**117.9**	50.0	200.0
Naphthalene-D8		**119.4**	50.0	200.0
Acenaphthalene-D10		**119.5**	50.0	200.0
Phenanthrene-D10		**113.5**	50.0	200.0
Chrysene-D12		**117.5**	50.0	200.0
Perylene-D12		**124.9**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: H240529.LCSDW28A, Parent Sample ID: H240529.LCSW28A

Run in Batch: H240529, Run Date: 05/29/2024 12:08, Prep Date: 05/28/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Acenaphthalene-D10		**98.6**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: P240529.LCSDW28A, Parent Sample ID: P240529.LCSW28A

Run in Batch: P240529, Run Date: 05/29/2024 11:59, Prep Date: 05/28/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dichlorobenzene-D4		**116.9**	50.0	200.0
Naphthalene-D8		**117.1**	50.0	200.0
Acenaphthalene-D10		**117.1**	50.0	200.0
Phenanthrene-D10		**114.9**	50.0	200.0
Chrysene-D12		**115.6**	50.0	200.0
Perylene-D12		**126.2**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VF240523W1

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240523A9.BLKW23A

Run in Batch: 240523A9, Run Date: 05/23/2024 13:52, Prep Date: 05/23/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**93.8**	50.0	200.0
1,4-Difluorobenzene		**95.3**	50.0	200.0
Chlorobenzene-D5		**90.7**	50.0	200.0
1,4-Dichlorobenzene-D4		**86.3**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 240523A9.LCSW23A

Run in Batch: 240523A9, Run Date: 05/23/2024 12:17, Prep Date: 05/23/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**100.1**	50.0	200.0
1,4-Difluorobenzene		**98.7**	50.0	200.0
Chlorobenzene-D5		**99.5**	50.0	200.0
1,4-Dichlorobenzene-D4		**95.3**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240523A9.LCSDW23A, Parent Sample ID: 240523A9.LCSW23A

Run in Batch: 240523A9, Run Date: 05/23/2024 12:41, Prep Date: 05/23/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**100.8**	50.0	200.0
1,4-Difluorobenzene		**99.1**	50.0	200.0
Chlorobenzene-D5		**100.3**	50.0	200.0
1,4-Dichlorobenzene-D4		**94.9**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VS240523W3

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: K240523B.BLK23B

Run in Batch: K240523B, Run Date: 05/23/2024 19:16, Prep Date: 05/23/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**82.3**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: K240523B.LCS23B

Run in Batch: K240523B, Run Date: 05/23/2024 17:38, Prep Date: 05/23/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**95.0**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: K240523B.LCSD23B, Parent Sample ID: K240523B.LCS23B

Run in Batch: K240523B, Run Date: 05/23/2024 18:02, Prep Date: 05/23/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**100.9**	50.0	200.0

Inorganics, Prep Batch ID: CHR240522-W1

Surrogates: No, QC Types: BLK/LCS/MS/MSD/DUP

Blank (BLK)

Lab Sample ID: CHR240522-W1.LRB1

Run in Batch: CHR240522-W1, Run Date: 05/22/2024 16:00, Prep Date: 05/22/2024, Matrix: Liquid, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Chromium VI		ND	0.01	mg/L

Laboratory Control Sample (LCS)

Lab Sample ID: CHR240522-W1.LCS1

Run in Batch: CHR240522-W1, Run Date: 05/22/2024 16:15, Prep Date: 05/22/2024, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Chromium VI		107	90	110

Matrix Spike (MS)

Lab Sample ID: CHR240522-W1.MS1, Parent Sample ID: S62261.21

Run in Batch: CHR240522-W1, Run Date: 05/22/2024 16:40, Prep Date: 05/22/2024, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Chromium VI		104	80	120

Matrix Spike Duplicate (MSD)

Lab Sample ID: CHR240522-W1.MSD1, Parent Sample ID: CHR240522-W1.MS1

Run in Batch: CHR240522-W1, Run Date: 05/22/2024 16:45, Prep Date: 05/22/2024, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Chromium VI		105	80	120	0	15

Duplicate (DUP)

Lab Sample ID: CHR240522-W1.DP1, Parent Sample ID: S62361.19

Run in Batch: CHR240522-W1, Run Date: 05/22/2024 16:25, Prep Date: 05/22/2024, Matrix: Liquid, Dilution: 1

Analyte	Flags	RPD	RPD CL
Chromium VI		<1	15

Metals, Prep Batch ID: MTD-052924-4

Surrogates: No, QC Types: BLK/LCS/MS/MSD

Blank (BLK)

Lab Sample ID: MT4-24-0529B.018.LRB

Run in Batch: MT4-24-0529B, Run Date: 05/29/2024 13:18, Prep Date: 05/29/2024, Matrix: Liquid, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Arsenic		ND	0.0004	mg/L
Chromium		ND	0.001	mg/L
Copper		ND	0.001	mg/L
Lead		ND	0.0006	mg/L
Nickel		ND	0.001	mg/L
Vanadium		ND	0.001	mg/L

Laboratory Control Sample (LCS)

Lab Sample ID: MT4-24-0529B.017.LCS

Run in Batch: MT4-24-0529B, Run Date: 05/29/2024 13:15, Prep Date: 05/29/2024, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Arsenic		103	85	115
Chromium		104	85	115
Copper		105	85	115
Lead		99	85	115
Nickel		103	85	115
Vanadium		101	85	115

Matrix Spike (MS)

Lab Sample ID: MT4-24-0529B.044.MS, Parent Sample ID: S62361.21

Run in Batch: MT4-24-0529B, Run Date: 05/29/2024 13:55, Prep Date: 05/29/2024, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL
Arsenic		102	75	125
Chromium	*	148	75	125
Copper		96	75	125
Lead		93	75	125
Nickel		97	75	125
Vanadium		102	75	125

Matrix Spike (MS)

Lab Sample ID: MT4-24-0529B.068.MS, Parent Sample ID: S62468.20

Run in Batch: MT4-24-0529B, Run Date: 05/29/2024 14:29, Prep Date: 05/29/2024, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL
Arsenic		102	75	125
Chromium		99	75	125
Copper		94	75	125
Lead		93	75	125
Nickel		97	75	125
Vanadium		101	75	125

Matrix Spike Duplicate (MSD)

Lab Sample ID: MT4-24-0529B.045.MSD, Parent Sample ID: MT4-24-0529B.044.MS

Run in Batch: MT4-24-0529B, Run Date: 05/29/2024 13:56, Prep Date: 05/29/2024, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Arsenic		103	75	125	1	20
Chromium	*	140	75	125	0	20

Metals, Prep Batch ID: MTD-052924-4 (continued)

Surrogates: No, QC Types: BLK/LCS/MS/MSD

Matrix Spike Duplicate (MSD) (continued)

Lab Sample ID: MT4-24-0529B.045.MSD, Parent Sample ID: MT4-24-0529B.044.MS

Run in Batch: MT4-24-0529B, Run Date: 05/29/2024 13:56, Prep Date: 05/29/2024, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Copper		95	75	125	0	20
Lead		96	75	125	3	20
Nickel		98	75	125	1	20
Vanadium		102	75	125	0	20

Matrix Spike Duplicate (MSD)

Lab Sample ID: MT4-24-0529B.069.MSD, Parent Sample ID: MT4-24-0529B.068.MS

Run in Batch: MT4-24-0529B, Run Date: 05/29/2024 14:30, Prep Date: 05/29/2024, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Arsenic		108	75	125	5	20
Chromium		101	75	125	2	20
Copper		96	75	125	2	20
Lead		93	75	125	0	20
Nickel		100	75	125	3	20
Vanadium		103	75	125	2	20

Organics - Semi-Volatiles, Prep Batch ID: SF240528W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: P240529.BLKW28A

Run in Batch: P240529, Run Date: 05/29/2024 10:58, Prep Date: 05/28/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Acenaphthene		ND	0.50	ug/l
Acenaphthylene		ND	0.50	ug/l
Anthracene		ND	0.50	ug/l
Benzo(a)anthracene		ND	0.50	ug/l
Benzo(b)fluoranthene		ND	0.50	ug/l
Benzo(k)fluoranthene		ND	0.50	ug/l
Benzo(ghi)perylene		ND	0.50	ug/l
Benzo(a)pyrene		ND	0.50	ug/l
bis(2-Chloroethoxy)methane		ND	0.50	ug/l
bis(2-Chloroethyl)ether		ND	0.50	ug/l
bis(2-Chloroisopropyl)ether		ND	0.50	ug/l
bis(2-Ethylhexyl)phthalate		ND	0.50	ug/l
4-Bromophenyl phenyl ether		ND	0.50	ug/l
Butyl benzyl phthalate		ND	0.50	ug/l
4-Chloroaniline		ND	0.50	ug/l
2-Chloronaphthalene		ND	0.50	ug/l
4-Chloro-3-methylphenol		ND	0.50	ug/l
2-Chlorophenol		ND	0.50	ug/l
4-Chlorophenyl phenyl ether		ND	0.50	ug/l
Chrysene		ND	0.50	ug/l
3-, 4-Methylphenol (p,m-Cresol)		ND	0.50	ug/l
2-Methylphenol (o-Cresol)		ND	0.50	ug/l
Dibenzo(ah)anthracene		ND	0.50	ug/l
Dibenzofuran		ND	0.50	ug/l
di-n-Butyl phthalate		ND	0.50	ug/l
1,2-Dichlorobenzene		ND	0.50	ug/l
1,3-Dichlorobenzene		ND	0.50	ug/l
1,4-Dichlorobenzene		ND	0.50	ug/l
3,3'-Dichlorobenzidine		ND	0.50	ug/l
2,4-Dichlorophenol		ND	0.50	ug/l
Diethyl phthalate		ND	0.50	ug/l
2,4-Dimethylphenol		ND	0.50	ug/l
Dimethyl phthalate		ND	0.50	ug/l
4,6-Dinitro-2-methylphenol		ND	0.50	ug/l
2,4-Dinitrophenol		ND	0.50	ug/l
2,4-Dinitrotoluene		ND	0.50	ug/l
2,6-Dinitrotoluene		ND	0.50	ug/l
1,2-Diphenylhydrazine		ND	0.50	ug/l
di-n-Octyl phthalate		ND	0.50	ug/l
Fluoranthene		ND	0.50	ug/l
Fluorene		ND	0.50	ug/l
Hexachlorobenzene		ND	0.50	ug/l
Hexachlorobutadiene		ND	0.50	ug/l
Hexachlorocyclopentadiene		ND	0.50	ug/l
Hexachloroethane		ND	0.50	ug/l
Indeno(1,2,3-cd)pyrene		ND	0.50	ug/l

Organics - Semi-Volatiles, Prep Batch ID: SF240528W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK) (continued)

Lab Sample ID: P240529.BLKW28A

Run in Batch: P240529, Run Date: 05/29/2024 10:58, Prep Date: 05/28/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Isophorone		ND	0.50	ug/l
2-Methylnaphthalene		ND	0.50	ug/l
Naphthalene		ND	0.50	ug/l
2-Nitroaniline		ND	0.50	ug/l
3-Nitroaniline		ND	0.50	ug/l
4-Nitroaniline		ND	0.50	ug/l
Nitrobenzene		ND	0.50	ug/l
2-Nitrophenol		ND	0.50	ug/l
4-Nitrophenol		ND	0.50	ug/l
N-Nitrosodiphenylamine		ND	0.50	ug/l
N-Nitrosodi-n-propylamine		ND	0.50	ug/l
Pentachlorophenol		ND	0.50	ug/l
Phenanthrene		ND	0.50	ug/l
Phenol		ND	0.50	ug/l
Pyrene		ND	0.50	ug/l
1,2,4-Trichlorobenzene		ND	0.50	ug/l
2,4,5-Trichlorophenol		ND	0.50	ug/l
2,4,6-Trichlorophenol		ND	0.50	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: P240529.LCSW28A

Run in Batch: P240529, Run Date: 05/29/2024 11:29, Prep Date: 05/28/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Acenaphthene		52.8	27	111
Acenaphthylene		51.3	16	116
Anthracene		59.0	31	119
Benzo(a)anthracene		59.7	35	119
Benzo(b)fluoranthene		56.2	27	129
Benzo(k)fluoranthene		57.5	36	120
Benzo(ghi)perylene		58.0	31	126
Benzo(a)pyrene		56.1	32	121
bis(2-Chloroethoxy)methane		50.2	23	106
bis(2-Chloroethyl)ether		46.9	29	94
bis(2-Chloroisopropyl)ether		45.6	23	91
bis(2-Ethylhexyl)phthalate		62.4	35	121
4-Bromophenyl phenyl ether		57.4	27	122
Butyl benzyl phthalate		58.3	36	117
4-Chloroaniline		32.5	19	91
2-Chloronaphthalene		50.6	21	109
4-Chloro-3-methylphenol		55.4	36	105
2-Chlorophenol		47.0	24	94
4-Chlorophenyl phenyl ether		56.0	31	114
Chrysene		58.9	34	119
3-, 4-Methylphenol (p,m-Cresol)		43.5	21	90
2-Methylphenol (o-Cresol)		44.2	23	79
Dibenzo(ah)anthracene		58.1	32	119

Organics - Semi-Volatiles, Prep Batch ID: SF240528W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: P240529.LCSW28A

Run in Batch: P240529, Run Date: 05/29/2024 11:29, Prep Date: 05/28/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Dibenzofuran		53.9	29	115
di-n-Butyl phthalate		59.3	34	121
1,2-Dichlorobenzene		41.0	11	88
1,3-Dichlorobenzene		38.7	10	85
1,4-Dichlorobenzene		39.2	10	85
3,3'-Dichlorobenzidine		48.4	27	110
2,4-Dichlorophenol		52.9	33	106
Diethyl phthalate		55.2	36	116
2,4-Dimethylphenol		50.3	30	105
Dimethyl phthalate		55.2	35	116
4,6-Dinitro-2-methylphenol		58.0	19	116
2,4-Dinitrophenol		62.8	10	125
2,4-Dinitrotoluene		53.8	33	119
2,6-Dinitrotoluene		53.4	34	117
1,2-Diphenylhydrazine		59.3	34	113
di-n-Octyl phthalate		60.0	30	133
Fluoranthene		59.0	35	121
Fluorene		55.7	32	114
Hexachlorobenzene		61.1	26	126
Hexachlorobutadiene		41.0	10	95
Hexachlorocyclopentadiene		38.9	10	90
Hexachloroethane		37.0	10	82
Indeno(1,2,3-cd)pyrene		57.5	31	124
Isophorone		52.0	26	104
2-Methylnaphthalene		48.3	21	103
Naphthalene		46.0	21	99
2-Nitroaniline		52.9	34	111
3-Nitroaniline		36.6	34	111
4-Nitroaniline		45.5	34	100
Nitrobenzene		48.3	30	98
2-Nitrophenol		51.6	31	108
4-Nitrophenol		30.6	10	90
N-Nitrosodiphenylamine		58.3	31	120
N-Nitrosodi-n-propylamine		51.6	33	102
Pentachlorophenol		45.3	10	108
Phenanthrene		58.1	35	113
Phenol		25.0	10	43
Pyrene		61.4	33	120
1,2,4-Trichlorobenzene		43.5	10	98
2,4,5-Trichlorophenol		57.3	31	120
2,4,6-Trichlorophenol		56.1	31	114

Organics - Semi-Volatiles, Prep Batch ID: SF240528W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: P240529.LCSDW28A, Parent Sample ID: P240529.LCSW28A

Run in Batch: P240529, Run Date: 05/29/2024 11:59, Prep Date: 05/28/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Acenaphthene		55.7	27	111	5.3	30.0
Acenaphthylene		55.6	16	116	8.0	30.0
Anthracene		60.8	31	119	3.1	30.0
Benzo(a)anthracene		63.1	35	119	5.4	30.0
Benzo(b)fluoranthene		60.3	27	129	7.0	30.0
Benzo(k)fluoranthene		57.2	36	120	0.6	30.0
Benzo(ghi)perylene		61.0	31	126	5.1	30.0
Benzo(a)pyrene		57.9	32	121	3.2	30.0
bis(2-Chloroethoxy)methane		52.3	23	106	4.3	30.0
bis(2-Chloroethyl)ether		48.1	29	94	2.6	30.0
bis(2-Chloroisopropyl)ether		46.7	23	91	2.3	30.0
bis(2-Ethylhexyl)phthalate		67.2	35	121	7.4	30.0
4-Bromophenyl phenyl ether		60.3	27	122	4.9	30.0
Butyl benzyl phthalate		62.1	36	117	6.2	30.0
4-Chloroaniline		28.6	19	91	12.9	30.0
2-Chloronaphthalene		53.8	21	109	6.1	30.0
4-Chloro-3-methylphenol		59.1	36	105	6.4	30.0
2-Chlorophenol		47.7	24	94	1.5	30.0
4-Chlorophenyl phenyl ether		59.8	31	114	6.4	30.0
Chrysene		62.0	34	119	5.0	30.0
3-, 4-Methylphenol (p,m-Cresol)		46.0	21	90	5.5	30.0
2-Methylphenol (o-Cresol)		45.5	23	79	2.8	30.0
Dibenzo(ah)anthracene		60.2	32	119	3.6	30.0
Dibenzofuran		58.2	29	115	7.6	30.0
di-n-Butyl phthalate		61.6	34	121	3.7	30.0
1,2-Dichlorobenzene		43.0	11	88	4.8	30.0
1,3-Dichlorobenzene		40.3	10	85	4.0	30.0
1,4-Dichlorobenzene		40.9	10	85	4.2	30.0
3,3'-Dichlorobenzidine		51.7	27	110	6.6	30.0
2,4-Dichlorophenol		56.7	33	106	6.9	30.0
Diethyl phthalate		59.0	36	116	6.7	30.0
2,4-Dimethylphenol		52.3	30	105	3.9	30.0
Dimethyl phthalate		59.4	35	116	7.4	30.0
4,6-Dinitro-2-methylphenol		60.2	19	116	3.7	30.0
2,4-Dinitrophenol		64.2	10	125	2.2	30.0
2,4-Dinitrotoluene		56.7	33	119	5.2	30.0
2,6-Dinitrotoluene		58.2	34	117	8.6	30.0
1,2-Diphenylhydrazine		62.1	34	113	4.6	30.0
di-n-Octyl phthalate		62.9	30	133	4.7	30.0
Fluoranthene		60.1	35	121	1.8	30.0
Fluorene		58.1	32	114	4.3	30.0
Hexachlorobenzene		62.9	26	126	2.9	30.0
Hexachlorobutadiene		43.0	10	95	4.8	30.0
Hexachlorocyclopentadiene		43.2	10	90	10.4	30.0
Hexachloroethane		39.6	10	82	6.9	30.0
Indeno(1,2,3-cd)pyrene		60.9	31	124	5.7	30.0

Organics - Semi-Volatiles, Prep Batch ID: SF240528W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: P240529.LCSDW28A, Parent Sample ID: P240529.LCSW28A

Run in Batch: P240529, Run Date: 05/29/2024 11:59, Prep Date: 05/28/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Isophorone		54.6	26	104	4.8	30.0
2-Methylnaphthalene		50.2	21	103	3.9	30.0
Naphthalene		47.8	21	99	3.9	30.0
2-Nitroaniline		58.0	34	111	9.2	30.0
3-Nitroaniline		34.9	34	111	4.8	30.0
4-Nitroaniline		47.4	34	100	4.2	30.0
Nitrobenzene		50.5	30	98	4.5	30.0
2-Nitrophenol		53.7	31	108	4.0	30.0
4-Nitrophenol		33.3	10	90	8.6	30.0
N-Nitrosodiphenylamine		61.4	31	120	5.1	30.0
N-Nitrosodi-n-propylamine		52.8	33	102	2.4	30.0
Pentachlorophenol		50.0	10	108	9.8	30.0
Phenanthrene		59.7	35	113	2.7	30.0
Phenol		26.1	10	43	4.2	30.0
Pyrene		66.9	33	120	8.6	30.0
1,2,4-Trichlorobenzene		46.4	10	98	6.5	30.0
2,4,5-Trichlorophenol		59.9	31	120	4.3	30.0
2,4,6-Trichlorophenol		60.3	31	114	7.2	30.0

Organics - Volatiles, Prep Batch ID: VF240523W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240523A9.BLKW23A

Run in Batch: 240523A9, Run Date: 05/23/2024 13:52, Prep Date: 05/23/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Diethyl ether		ND	1.00	ug/l
Acetone		ND	10.00	ug/l
Methyl iodide		ND	1.00	ug/l
Carbon disulfide		ND	1.00	ug/l
tert-Methyl butyl ether (MTBE)		ND	1.00	ug/l
Acrylonitrile		ND	1.00	ug/l
2-Butanone (MEK)		ND	10.00	ug/l
Dichlorodifluoromethane		ND	1.00	ug/l
Chloromethane		ND	1.00	ug/l
Vinyl chloride		ND	1.00	ug/l
Bromomethane		ND	1.00	ug/l
Chloroethane		ND	1.00	ug/l
Trichlorofluoromethane		ND	1.00	ug/l
1,1-Dichloroethene		ND	1.00	ug/l
Methylene chloride		ND	1.00	ug/l
trans-1,2-Dichloroethene		ND	1.00	ug/l
1,1-Dichloroethane		ND	1.00	ug/l
cis-1,2-Dichloroethene		ND	1.00	ug/l
Tetrahydrofuran		ND	10.00	ug/l
Chloroform		ND	1.00	ug/l
Bromochloromethane		ND	1.00	ug/l
1,1,1-Trichloroethane		ND	1.00	ug/l
4-Methyl-2-pentanone (MIBK)		ND	10.00	ug/l
2-Hexanone		ND	10.00	ug/l
Carbon tetrachloride		ND	1.00	ug/l
Benzene		ND	1.00	ug/l
1,2-Dichloroethane		ND	1.00	ug/l
Trichloroethene		ND	1.00	ug/l
1,2-Dichloropropane		ND	1.00	ug/l
Bromodichloromethane		ND	1.00	ug/l
Dibromomethane		ND	1.00	ug/l
cis-1,3-Dichloropropene		ND	1.00	ug/l
Toluene		ND	1.00	ug/l
trans-1,3-Dichloropropene		ND	1.00	ug/l
1,1,2-Trichloroethane		ND	1.00	ug/l
Tetrachloroethene		ND	1.00	ug/l
trans-1,4-Dichloro-2-butene		ND	1.00	ug/l
Dibromochloromethane		ND	1.00	ug/l
1,2-Dibromoethane		ND	1.00	ug/l
Chlorobenzene		ND	1.00	ug/l
1,1,1,2-Tetrachloroethane		ND	1.00	ug/l
Ethylbenzene		ND	1.00	ug/l
p,m-Xylene		ND	2.00	ug/l
o-Xylene		ND	1.00	ug/l
Styrene		ND	1.00	ug/l
Isopropylbenzene		ND	1.00	ug/l

Organics - Volatiles, Prep Batch ID: VF240523W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK) (continued)

Lab Sample ID: 240523A9.BLKW23A

Run in Batch: 240523A9, Run Date: 05/23/2024 13:52, Prep Date: 05/23/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Bromoform		ND	1.00	ug/l
1,1,2,2-Tetrachloroethane		ND	1.00	ug/l
1,2,3-Trichloropropane		ND	1.00	ug/l
n-Propylbenzene		ND	1.00	ug/l
Bromobenzene		ND	1.00	ug/l
1,3,5-Trimethylbenzene		ND	1.00	ug/l
tert-Butylbenzene		ND	1.00	ug/l
1,2,4-Trimethylbenzene		ND	1.00	ug/l
sec-Butylbenzene		ND	1.00	ug/l
p-Isopropyltoluene		ND	1.00	ug/l
1,3-Dichlorobenzene		ND	1.00	ug/l
1,4-Dichlorobenzene		ND	1.00	ug/l
1,2-Dichlorobenzene		ND	1.00	ug/l
1,2,3-Trimethylbenzene		ND	1.00	ug/l
n-Butylbenzene		ND	1.00	ug/l
Hexachloroethane		ND	1.00	ug/l
1,2-Dibromo-3-chloropropane		ND	1.00	ug/l
1,2,4-Trichlorobenzene		ND	1.00	ug/l
1,2,3-Trichlorobenzene		ND	1.00	ug/l
Naphthalene		ND	1.00	ug/l
2-Methylnaphthalene		ND	1.00	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 240523A9.LCSW23A

Run in Batch: 240523A9, Run Date: 05/23/2024 12:17, Prep Date: 05/23/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Diethyl ether		96.5	67.4	121.2
Acetone		75.6	29.9	161.5
Methyl iodide		109.1	68.8	116.4
Carbon disulfide		96.5	63.8	137.4
tert-Methyl butyl ether (MTBE)		97.4	73.2	122.4
Acrylonitrile		88.8	69.9	128.9
2-Butanone (MEK)		94.6	44.0	134.4
Dichlorodifluoromethane		86.3	10.0	222.8
Chloromethane		89.8	23.8	166.5
Vinyl chloride		91.5	43.5	149.1
Bromomethane		98.2	56.8	151.3
Chloroethane		94.7	53.4	149.4
Trichlorofluoromethane		92.7	59.7	151.8
1,1-Dichloroethene		91.1	69.6	139.4
Methylene chloride		94.7	73.3	121.1
trans-1,2-Dichloroethene		90.7	73.6	129.3
1,1-Dichloroethane		93.4	71.5	126.2
cis-1,2-Dichloroethene		98.9	76.6	122.1
Tetrahydrofuran		81.6	59.0	117.9
Chloroform		92.0	78.4	124.0

Organics - Volatiles, Prep Batch ID: VF240523W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 240523A9.LCSW23A

Run in Batch: 240523A9, Run Date: 05/23/2024 12:17, Prep Date: 05/23/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Bromochloromethane		105.4	78.2	120.8
1,1,1-Trichloroethane		93.9	79.4	130.9
4-Methyl-2-pentanone (MIBK)		96.7	71.6	125.2
2-Hexanone		96.1	55.4	136.9
Carbon tetrachloride		101.2	72.6	133.0
Benzene		98.0	79.9	124.9
1,2-Dichloroethane		91.6	76.0	126.3
Trichloroethene		100.7	79.7	124.2
1,2-Dichloropropane		94.5	78.6	126.4
Bromodichloromethane		101.5	80.4	128.2
Dibromomethane		113.0	76.9	122.1
cis-1,3-Dichloropropene		104.8	79.8	129.9
Toluene		98.2	79.8	124.5
trans-1,3-Dichloropropene		103.4	74.0	131.3
1,1,2-Trichloroethane		102.2	78.7	123.1
Tetrachloroethene		110.1	74.5	124.5
trans-1,4-Dichloro-2-butene		118.2	68.6	135.4
Dibromochloromethane		117.8	74.6	127.2
1,2-Dibromoethane		109.1	70.3	133.7
Chlorobenzene		108.5	79.2	122.7
1,1,1,2-Tetrachloroethane		110.7	80.3	128.2
Ethylbenzene		108.1	79.5	129.1
p,m-Xylene		108.9	79.4	132.2
o-Xylene		105.8	80.2	131.0
Styrene		110.5	69.5	126.7
Isopropylbenzene		109.3	74.4	121.5
Bromoform		121.6	69.4	128.0
1,1,2,2-Tetrachloroethane		107.0	79.8	126.3
1,2,3-Trichloropropane		105.1	78.3	138.8
n-Propylbenzene		104.9	82.0	130.7
Bromobenzene		111.5	78.7	124.6
1,3,5-Trimethylbenzene		111.4	81.3	128.9
tert-Butylbenzene		103.0	80.7	128.9
1,2,4-Trimethylbenzene		111.2	81.4	130.8
sec-Butylbenzene		100.1	77.4	129.8
p-Isopropyltoluene		105.5	79.8	137.5
1,3-Dichlorobenzene		106.8	77.0	131.3
1,4-Dichlorobenzene		107.7	20.7	137.7
1,2-Dichlorobenzene		107.9	10.0	166.2
1,2,3-Trimethylbenzene		108.3	76.3	124.2
n-Butylbenzene		104.0	80.0	133.3
Hexachloroethane		119.4	23.8	138.1
1,2-Dibromo-3-chloropropane		107.5	21.2	189.4
1,2,4-Trichlorobenzene		117.5	27.4	143.4
1,2,3-Trichlorobenzene		119.2	75.4	131.4
Naphthalene		113.9	32.9	135.8

Organics - Volatiles, Prep Batch ID: VF240523W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 240523A9.LCSW23A

Run in Batch: 240523A9, Run Date: 05/23/2024 12:17, Prep Date: 05/23/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
2-Methylnaphthalene		111.0	25.5	165.5

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240523A9.LCSDW23A, Parent Sample ID: 240523A9.LCSW23A

Run in Batch: 240523A9, Run Date: 05/23/2024 12:41, Prep Date: 05/23/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Diethyl ether		94.6	67.4	121.2	2.0	30.0
Acetone		74.2	29.9	161.5	1.9	30.0
Methyl iodide		104.7	68.8	116.4	4.2	30.0
Carbon disulfide		90.9	63.8	137.4	6.0	30.0
tert-Methyl butyl ether (MTBE)		94.9	73.2	122.4	2.5	30.0
Acrylonitrile		86.7	69.9	128.9	2.5	30.0
2-Butanone (MEK)		92.9	44.0	134.4	1.9	30.0
Dichlorodifluoromethane		81.2	10.0	222.8	6.1	30.0
Chloromethane		85.4	23.8	166.5	5.0	30.0
Vinyl chloride		86.9	43.5	149.1	5.1	30.0
Bromomethane		92.1	56.8	151.3	6.3	30.0
Chloroethane		89.6	53.4	149.4	5.5	30.0
Trichlorofluoromethane		87.2	59.7	151.8	6.1	30.0
1,1-Dichloroethene		85.3	69.6	139.4	6.6	30.0
Methylene chloride		92.3	73.3	121.1	2.6	30.0
trans-1,2-Dichloroethene		87.5	73.6	129.3	3.6	30.0
1,1-Dichloroethane		89.3	71.5	126.2	4.4	30.0
cis-1,2-Dichloroethene		96.1	76.6	122.1	2.8	30.0
Tetrahydrofuran		79.0	59.0	117.9	3.3	30.0
Chloroform		89.4	78.4	124.0	2.9	30.0
Bromochloromethane		102.3	78.2	120.8	3.0	30.0
1,1,1-Trichloroethane		90.7	79.4	130.9	3.4	30.0
4-Methyl-2-pentanone (MIBK)		92.1	71.6	125.2	4.9	30.0
2-Hexanone		92.1	55.4	136.9	4.2	30.0
Carbon tetrachloride		95.7	72.6	133.0	5.5	30.0
Benzene		93.0	79.9	124.9	5.2	30.0
1,2-Dichloroethane		89.6	76.0	126.3	2.2	30.0
Trichloroethene		95.6	79.7	124.2	5.1	30.0
1,2-Dichloropropane		92.3	78.6	126.4	2.3	30.0
Bromodichloromethane		98.9	80.4	128.2	2.6	30.0
Dibromomethane		109.6	76.9	122.1	3.0	30.0
cis-1,3-Dichloropropene		101.0	79.8	129.9	3.7	30.0
Toluene		93.8	79.8	124.5	4.5	30.0
trans-1,3-Dichloropropene		101.8	74.0	131.3	1.6	30.0
1,1,2-Trichloroethane		98.7	78.7	123.1	3.5	30.0
Tetrachloroethene		104.1	74.5	124.5	5.6	30.0
trans-1,4-Dichloro-2-butene		116.1	68.6	135.4	1.8	30.0
Dibromochloromethane		113.6	74.6	127.2	3.6	30.0
1,2-Dibromoethane		105.5	70.3	133.7	3.4	30.0
Chlorobenzene		105.2	79.2	122.7	3.1	30.0

Organics - Volatiles, Prep Batch ID: VF240523W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: 240523A9.LCSDW23A, Parent Sample ID: 240523A9.LCSW23A

Run in Batch: 240523A9, Run Date: 05/23/2024 12:41, Prep Date: 05/23/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,1,1,2-Tetrachloroethane		105.1	80.3	128.2	5.2	30.0
Ethylbenzene		101.7	79.5	129.1	6.2	30.0
p,m-Xylene		103.4	79.4	132.2	5.2	30.0
o-Xylene		101.8	80.2	131.0	3.8	30.0
Styrene		106.5	69.5	126.7	3.7	30.0
Isopropylbenzene		103.9	74.4	121.5	5.1	30.0
Bromoform		119.3	69.4	128.0	1.8	30.0
1,1,2,2-Tetrachloroethane		103.1	79.8	126.3	3.8	30.0
1,2,3-Trichloropropane		103.4	78.3	138.8	1.6	30.0
n-Propylbenzene		100.6	82.0	130.7	4.2	30.0
Bromobenzene		108.3	78.7	124.6	2.9	30.0
1,3,5-Trimethylbenzene		107.3	81.3	128.9	3.7	30.0
tert-Butylbenzene		99.2	80.7	128.9	3.7	30.0
1,2,4-Trimethylbenzene		105.8	81.4	130.8	5.0	30.0
sec-Butylbenzene		96.7	77.4	129.8	3.5	30.0
p-Isopropyltoluene		101.9	79.8	137.5	3.5	30.0
1,3-Dichlorobenzene		103.7	77.0	131.3	2.9	30.0
1,4-Dichlorobenzene		105.5	20.7	137.7	2.1	30.0
1,2-Dichlorobenzene		105.1	10.0	166.2	2.6	30.0
1,2,3-Trimethylbenzene		105.8	76.3	124.2	2.3	30.0
n-Butylbenzene		100.7	80.0	133.3	3.3	30.0
Hexachloroethane		116.8	23.8	138.1	2.2	30.0
1,2-Dibromo-3-chloropropane		104.3	21.2	189.4	3.0	30.0
1,2,4-Trichlorobenzene		114.9	27.4	143.4	2.3	30.0
1,2,3-Trichlorobenzene		117.1	75.4	131.4	1.8	30.0
Naphthalene		111.2	32.9	135.8	2.4	30.0
2-Methylnaphthalene		108.6	25.5	165.5	2.2	30.0

Organics - Volatiles, Prep Batch ID: VS240523W3

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: K240523B.BLK23B

Run in Batch: K240523B, Run Date: 05/23/2024 19:16, Prep Date: 05/23/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
1,4-Dioxane	*	0.0512	0.02	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: K240523B.LCS23B

Run in Batch: K240523B, Run Date: 05/23/2024 17:38, Prep Date: 05/23/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		111.8	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: K240523B.LCSD23B, Parent Sample ID: K240523B.LCS23B

Run in Batch: K240523B, Run Date: 05/23/2024 18:02, Prep Date: 05/23/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		95.4	70.0	130.0	15.8	30.0

Merit Laboratories Login Checklist

Lab Set ID: S62361
Client: ARCADIS_NOVI (ARCADIS U.S., Inc.)
Project: 30214036.0470A / RACER Lansing GWS
Submitted: 05/22/2024 13:45 Login User: MMC

Attention: Kaitlyn Hunt
Address: Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 5.1
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[ ] Yes	[X] No	[ ] N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	[X] Yes	[ ] No	[ ] N/A	Do sample have correct chemical preservation	
11.	[X] Yes	[ ] No	[ ] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[ ] Yes	[X] No	[ ] N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[ ] Yes	[X] No	[ ] N/A	Samples require laboratory filtration	
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[X] No	[ ] N/A	Do water VOC or TOX bottles contain headspace	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories Bottle Preservation Check

Lab Set ID: S62361 Submitted: 05/22/2024 13:45

Client: ARCADIS_NOVI (ARCADIS U.S., Inc.)

Project: 30214036.0470A / RACER Lansing GWS

Initial Preservation Check: 05/22/2024 15:20 MMC

Preservation Recheck (E200.8): N/A

Attention: Kaitlyn Hunt
Address: Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Sample ID	Bottle / Preservation	pH (Orig)	Add ml	pH (New)	Notes
S62361.08	125mL Plastic HNO3	<2			
S62361.08	125mL Plastic HNO3	<2			
S62361.10	125mL Plastic HNO3	<2			
S62361.11	125mL Plastic HNO3	<2			
S62361.19	125mL Plastic HNO3	<2			
S62361.20	125mL Plastic HNO3	<2			
S62361.21	125mL Plastic HNO3	<2			
S62361.22	125mL Plastic HNO3	<2			
S62361.23	125mL Plastic HNO3	<2			
S62361.24	125mL Plastic HNO3	<2			

Plant 3

Merit Laboratories, Inc.
2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 2

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Tiffany Linder, Kaitlyn Hunt
COMPANY: Arcadis
ADDRESS: 28550 Cabot Drive, STE 500
CITY: Novi | STATE: MI | ZIP CODE: 48377
PHONE NO.: 947-777-5215 | FAX NO.: | P.O. NO.: US3460016166
E-MAIL ADDRESS: kaitlyn.hunt@arcadis.com | QUOTE NO.:

INVOICE TO

CONTACT NAME: ☒ SAME
COMPANY:
ADDRESS:
CITY: | STATE: | ZIP CODE:
PHONE NO.: | E-MAIL ADDRESS: tiffany.linder@arcadis.com

PROJECT NO./NAME: 30214036.0470A / RACER Lansing GWS
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Bill Coberm

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☒ EDD ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐ OHIO VAP ☐ Drinking Water ☐ DoD ☐ NPDES
Project Locations: ☐ Detroit ☐ New York ☐ Other
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	1,4-Dioxane - 8260 SIMS	VOC - 8260 SIMS	SVOC-8270 SIMS	Select Total Metals	Select Diss. Metals (FF)	Hex Chromium	Special Instructions
62361.01	5/21/24	1115	MW-13-41_052124	GW	3		3							X					Select Metals include As, Ni, Pb, V, Cr, Cu
.02	5/21/24	1235	MW-15-71_052124	GW	3		3						X						
.03	5/21/24	1400	MW-14-64_052124	GW	3		3						X						
.04	5/21/24	1530	MW-13-49_052124	GW	3		3						X						
.05	5/21/24	1640	MW-13-46_052124	GW	3		3						X						
.06	5/21/24	1745	MW-12-20_052124	GW	3		3						X						
.07	5/21/24	1550	MW-05(3)_052124	GW	3		3							X					
.08	5/21/24	1100	MW-02-04(3)_052124	GW	5		3	2					X			X	X		
.09	5/21/24	1550	MW-18-101_052124	GW	3		3						X						
.10	5/22/24	1100	MW-13-32_052224	GW		2		1							X	X			
.11	5/22/24	—	DUP-05_052224	GW		2		1							X	X			
.12	5/22/24	1200	P3-SB-28_052224	GW		2									X				

RELINQUISHED BY: SIGNATURE/ORGANIZATION	Arcadis ☒ Sampler	DATE 5/22/24	TIME 1345
RECEIVED BY: SIGNATURE/ORGANIZATION	Merit Drop Box	DATE 5/22/24	TIME 1345
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

RELINQUISHED BY: SIGNATURE/ORGANIZATION	Merit Drop Box	DATE 5/22/24	TIME 1345
RECEIVED BY: SIGNATURE/ORGANIZATION	M Ailcots	DATE 5/22/24	TIME 1345
SEAL NO.	SEAL INTACT YES☐ NO☐	INITIALS	NOTES: TEMP. ON ARRIVAL 5.1
SEAL NO.	SEAL INTACT YES☐ NO☐	INITIALS	

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

Plant 3

Merit Laboratories, Inc.
2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 2 OF 2

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Tiffany Linder, Kaitlyn Hunt
COMPANY: Arcadis
ADDRESS: 28550 Cabot Drive, STE 500
CITY: Novi | STATE: MI | ZIP CODE: 48377
PHONE NO.: 947-777-5215 | FAX NO.: | P.O. NO.: US3460016166
E-MAIL ADDRESS: kaitlyn.hunt@arcadis.com | QUOTE NO.:

INVOICE TO

CONTACT NAME: ☒ SAME
COMPANY:
ADDRESS:
CITY: | STATE: | ZIP CODE:
PHONE NO.: | E-MAIL ADDRESS: tiffany.linder@arcadis.com

PROJECT NO./NAME: 30214036.0470A / RACER Lansing GWS
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Austin Westhuis

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☒ EDD ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐ OHIO VAP ☐ Drinking Water ☐ DoD ☐ NPDES
Project Locations: ☐ Detroit ☐ New York ☐ Other
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	1,4-Dioxane - 8260 SIMS	VOC - 8260 SIMS	SVOC-8270 SIMS	Select Total Metals	Select Diss. Metals	Hex Chromium	Special Instructions
13/.14/.15	5/21/24	1050	MW-13-23_052124	GW	9		9						X			X		X	Select Metals include As, Ni, Pb, V, Cr, Cu
62361.16	5/21/24	1235	MW-02-02(3)_052124	GW	3		3						X						
.17	5/21/24	1350	MW-13-25_052124	GW	3		3						X						
.18	5/21/24	1515	MW-13-24_052124	GW	3		3						X						
.19	5/22/24	935	MW-91-2R_052224	GW	5	1	3	1					X			X		X	
.20	5/22/24	—	Dup-09_052224	GW	5	1	3	1					X			X		X	
.21/22/.23	5/22/24	1040	CH-14-RO_052224	GW	6	3		3								X		X	MS MSD
.24	5/22/24	1150	MW-18-88_052224	GW	5	1	3	1						X		X		X	
.25	5/22/24	1255	UNK-11_052224	GW	2	2									X				
.26	5/21/24	—	Trip Blank	GW	1		1							X					

RELINQUISHED BY: SIGNATURE/ORGANIZATION	Arcadis / Sampler	5/22/24 DATE	1345 TIME
RECEIVED BY: SIGNATURE/ORGANIZATION	Merit Drop Box	5/22/24 DATE	1345 TIME
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

RELINQUISHED BY: SIGNATURE/ORGANIZATION	Merit Drop Box	5/22/24 DATE	1345 TIME
RECEIVED BY: SIGNATURE/ORGANIZATION	M Ailcott	5/22/24 DATE	1345 TIME
SEAL NO.	SEAL INTACT YES☐ NO☐	INITIALS	
SEAL NO.	SEAL INTACT YES☐ NO☐	INITIALS	

NOTES: TEMP. ON ARRIVAL 5.1

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

Analytical Laboratory Report

Report ID: S62468.01(01)+QC01
Generated on 05/31/2024

Report to

Attention: Kaitlyn Hunt
Arcadis
28550 Cabot Drive
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Novi, MI 48377

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Report Summary

Lab Sample ID(s): S62468.01-S62468.24
Project: 30214036.0470A / RACER Lansing GWS
Collected Date(s): 05/22/2024 - 05/23/2024
Submitted Date/Time: 05/24/2024 08:00
Sampled by: Donald Richmond / Billy Cobern
P.O. #: US3460016166

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Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Starred (*) analytes are not NY NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.
Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.
All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.
For a specific list of accredited analytes, please feel free to contact the laboratory or visit https://www.meritlabs.com/certifications.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
o	Associated EIS outside of control limits
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
q	Qualifier ion ratio outside of control limits
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
E200.8	EPA Method 200.8 Revision 5.4
N/A	Not Applicable
SW3015A	SW 846 Method 3015A Revision 1 February 2007
SW3510C	SW 846 Method 3510C Revision 3 December 1996
SW5030C/8260C	SW 846 Method 8260C Revision 3 August 2006 / 5030C Revision 3 May 2003
SW8260B - SIM	SW 846 Method 8260B Revision 2 December 1996 SIMs
SW8270D	SW 846 Method 8270D Revision 4 February 2007

Sample Summary (24 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S62468.01	MW-04-06R_052224	Groundwater	05/22/24 11:15
S62468.02	MW-04-01(6)_052224	Groundwater	05/22/24 13:05
S62468.03	MW-04-01(6)_052224 MS	Groundwater	05/22/24 13:05
S62468.04	MW-04-01(6)_052224 MSD	Groundwater	05/22/24 13:05
S62468.05	MW-04-04R_052224	Groundwater	05/22/24 15:00
S62468.06	MW-21-141_052224	Groundwater	05/22/24 16:40
S62468.07	MW-13-50_052324	Groundwater	05/23/24 09:55
S62468.08	MW-13-52_052324	Groundwater	05/23/24 11:20
S62468.09	MW-03-06_052324	Groundwater	05/23/24 13:10
S62468.10	MW-03-05_052324	Groundwater	05/23/24 14:20
S62468.11	MW-02-02(6)_052324	Groundwater	05/23/24 15:40
S62468.12	Trip Blank	Water	05/23/24 00:01
S62468.13	Dup-11_052324	Groundwater	05/23/24 00:01
S62468.14	Dup-13_052224	Groundwater	05/22/24 00:01
S62468.15	MWBP-10-UST5-6_052324	Groundwater	05/23/24 11:50
S62468.16	MWBP-11-UST1-4_052324	Groundwater	05/23/24 13:20
S62468.17	MWBP-12-UST1-4_052324	Groundwater	05/23/24 14:15
S62468.18	P6-SB-07_052324	Groundwater	05/23/24 15:55
S62468.19	MW-12-13_052324	Groundwater	05/23/24 12:45
S62468.20	MW-13-36R_052324	Groundwater	05/23/24 14:05
S62468.21	MW-14-66_052324	Groundwater	05/23/24 14:50
S62468.22	MW-14-67_052324	Groundwater	05/23/24 15:15
S62468.23	DUP-12_052324	Groundwater	05/23/24 00:01
S62468.24	MW-04-05(6)_052324	Groundwater	05/23/24 13:05

Analytical Laboratory Report

Lab Sample ID: S62468.01
Sample Tag: MW-04-06R_052224
Collected Date/Time: 05/22/2024 11:15
Matrix: Groundwater
COC Reference: 1

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	7.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/28/24 12:30	BDO	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/24/24 15:50, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	Not detected	1		ug/L	1	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S62468.02
Sample Tag: MW-04-01(6)_052224
Collected Date/Time: 05/22/2024 13:05
Matrix: Groundwater
COC Reference: 1

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	7.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/28/24 12:30	BDO	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/24/24 16:14, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	Not detected	1		ug/L	1	123-91-1	

Lab Sample ID: S62468.03
Sample Tag: MW-04-01(6)_052224 MS
Collected Date/Time: 05/22/2024 13:05
Matrix: Groundwater
COC Reference: 1

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	7.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/28/24 12:30	BDO	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/24/24 20:19, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	46	1		ug/L	1	123-91-1	1

1-Spiked at 50 ug/L

Lab Sample ID: S62468.04
Sample Tag: MW-04-01(6)_052224 MSD
Collected Date/Time: 05/22/2024 13:05
Matrix: Groundwater
COC Reference: 1

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	7.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/28/24 12:30	BDO	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/24/24 20:44, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	58	1		ug/L	1	123-91-1	1

1-Spiked at 50 ug/L

Lab Sample ID: S62468.05
Sample Tag: MW-04-04R_052224
Collected Date/Time: 05/22/2024 15:00
Matrix: Groundwater
COC Reference: 1

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	7.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/28/24 12:30	BDO	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/24/24 16:39, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	Not detected	1		ug/L	1	123-91-1	

Lab Sample ID: S62468.06
Sample Tag: MW-21-141_052224
Collected Date/Time: 05/22/2024 16:40
Matrix: Groundwater
COC Reference: 1

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	7.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/28/24 12:30	BDO	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/24/24 17:03, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	Not detected	1		ug/L	1	123-91-1	

Lab Sample ID: S62468.07
Sample Tag: MW-13-50_052324
Collected Date/Time: 05/23/2024 09:55
Matrix: Groundwater
COC Reference: 1

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	7.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/28/24 12:30	BDO	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/24/24 17:28, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	Not detected	1		ug/L	1	123-91-1	

Lab Sample ID: S62468.08
Sample Tag: MW-13-52_052324
Collected Date/Time: 05/23/2024 11:20
Matrix: Groundwater
COC Reference: 1

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	7.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/28/24 12:30	BDO	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/24/24 17:52, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	Not detected	1		ug/L	1	123-91-1	

Lab Sample ID: S62468.09
Sample Tag: MW-03-06_052324
Collected Date/Time: 05/23/2024 13:10
Matrix: Groundwater
COC Reference: 1

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	7.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/28/24 12:30	BDO	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/24/24 18:17, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	5	1		ug/L	1	123-91-1	

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/28/24 15:53, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	11	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	

Lab Sample ID: S62468.09 (continued)
Sample Tag: MW-03-06_052324

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/28/24 15:53, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Lab Sample ID: S62468.10
Sample Tag: MW-03-05_052324
Collected Date/Time: 05/23/2024 14:20
Matrix: Groundwater
COC Reference: 1

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	7.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/28/24 12:30	BDO	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/24/24 18:41, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	Not detected	1		ug/L	1	123-91-1	

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/25/24 04:37, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	

Lab Sample ID: S62468.10 (continued)
Sample Tag: MW-03-05_052324

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/25/24 04:37, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Lab Sample ID: S62468.11
Sample Tag: MW-02-02(6)_052324
Collected Date/Time: 05/23/2024 15:40
Matrix: Groundwater
COC Reference: 1

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	7.3	IR
2	1L Amber	None	Yes	7.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/28/24 12:30	BDO	
BNA Extraction	Completed	SW3510C	05/29/24 15:00	JWR	

Organics - Semi-Volatiles

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 05/31/24 01:13, Analyst: PL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acenaphthene	Not detected	5		ug/L	2	83-32-9	
Acenaphthylene	Not detected	5		ug/L	2	208-96-8	
Anthracene	Not detected	5		ug/L	2	120-12-7	
Benzo(a)anthracene	Not detected	1		ug/L	2	56-55-3	
Benzo(b)fluoranthene	Not detected	1		ug/L	2	205-99-2	
Benzo(k)fluoranthene	Not detected	1		ug/L	2	207-08-9	
Benzo(ghi)perylene	Not detected	1		ug/L	2	191-24-2	
Benzo(a)pyrene	Not detected	1		ug/L	2	50-32-8	
bis(2-Chloroethoxy)methane	Not detected	5		ug/L	2	111-91-1	
bis(2-Chloroethyl)ether	Not detected	5		ug/L	2	111-44-4	
bis(2-Chloroisopropyl)ether*	Not detected	5		ug/L	2	108-60-1	
bis(2-Ethylhexyl)phthalate	Not detected	5		ug/L	2	117-81-7	
4-Bromophenyl phenyl ether	Not detected	5		ug/L	2	101-55-3	
Butyl benzyl phthalate	Not detected	5		ug/L	2	85-68-7	
4-Chloroaniline	Not detected	10		ug/L	2	106-47-8	
2-Chloronaphthalene	Not detected	5		ug/L	2	91-58-7	
4-Chloro-3-methylphenol	Not detected	5		ug/L	2	59-50-7	
2-Chlorophenol	Not detected	10		ug/L	2	95-57-8	
4-Chlorophenyl phenyl ether	Not detected	5		ug/L	2	7005-72-3	
Chrysene	Not detected	1		ug/L	2	218-01-9	
3-, 4-Methylphenol (p,m-Cresol)	Not detected	20		ug/L	2	3/4-CRESOL	
2-Methylphenol (o-Cresol)	Not detected	10		ug/L	2	95-48-7	
Dibenzo(ah)anthracene	Not detected	2		ug/L	2	53-70-3	
Dibenzofuran	Not detected	4		ug/L	2	132-64-9	
di-n-Butyl phthalate	Not detected	5		ug/L	2	84-74-2	
1,2-Dichlorobenzene	Not detected	1		ug/L	2	95-50-1	
1,3-Dichlorobenzene	Not detected	1		ug/L	2	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	2	106-46-7	
3,3'-Dichlorobenzidine	Not detected	5		ug/L	2	91-94-1	
2,4-Dichlorophenol	Not detected	10		ug/L	2	120-83-2	
Diethyl phthalate	Not detected	5		ug/L	2	84-66-2	
2,4-Dimethylphenol	Not detected	5		ug/L	2	105-67-9	
Dimethyl phthalate	Not detected	5		ug/L	2	131-11-3	
4,6-Dinitro-2-methylphenol	Not detected	20		ug/L	2	534-52-1	
2,4-Dinitrophenol	Not detected	25		ug/L	2	51-28-5	

Lab Sample ID: S62468.11 (continued)
Sample Tag: MW-02-02(6)_052324

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 05/31/24 01:13, Analyst: PL (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
2,4-Dinitrotoluene	Not detected	5		ug/L	2	121-14-2	
2,6-Dinitrotoluene	Not detected	5		ug/L	2	606-20-2	
1,2-Diphenylhydrazine*	Not detected	5		ug/L	2	122-66-7	
di-n-Octyl phthalate	Not detected	5		ug/L	2	117-84-0	
Fluoranthene	Not detected	1		ug/L	2	206-44-0	
Fluorene	Not detected	5		ug/L	2	86-73-7	
Hexachlorobenzene	Not detected	5		ug/L	2	118-74-1	
Hexachlorobutadiene	Not detected	10		ug/L	2	87-68-3	
Hexachlorocyclopentadiene*	Not detected	5		ug/L	2	77-47-4	
Hexachloroethane	Not detected	5		ug/L	2	67-72-1	
Indeno(1,2,3-cd)pyrene	Not detected	2		ug/L	2	193-39-5	
Isophorone	Not detected	5		ug/L	2	78-59-1	
2-Methylnaphthalene	Not detected	5		ug/L	2	91-57-6	
Naphthalene	Not detected	5		ug/L	2	91-20-3	
2-Nitroaniline	Not detected	25		ug/L	2	88-74-4	
3-Nitroaniline	Not detected	25		ug/L	2	99-09-2	
4-Nitroaniline	Not detected	25		ug/L	2	100-01-6	
Nitrobenzene	Not detected	5		ug/L	2	98-95-3	
2-Nitrophenol	Not detected	5		ug/L	2	88-75-5	
4-Nitrophenol	Not detected	25		ug/L	2	100-02-7	
N-Nitrosodiphenylamine	Not detected	5		ug/L	2	86-30-6	
N-Nitrosodi-n-propylamine	Not detected	5		ug/L	2	621-64-7	
Pentachlorophenol	Not detected	5		ug/L	2	87-86-5	
Phenanthrene	Not detected	2		ug/L	2	85-01-8	
Phenol	Not detected	5		ug/L	2	108-95-2	
Pyrene	Not detected	5		ug/L	2	129-00-0	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	2	120-82-1	
2,4,5-Trichlorophenol	Not detected	5		ug/L	2	95-95-4	
2,4,6-Trichlorophenol	Not detected	4		ug/L	2	88-06-2	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/24/24 19:06, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	30	1		ug/L	1	123-91-1	

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/28/24 16:17, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	

Lab Sample ID: S62468.11 (continued)
Sample Tag: MW-02-02(6)_052324

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/28/24 16:17, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	

Lab Sample ID: S62468.11 (continued)
Sample Tag: MW-02-02(6)_052324

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/28/24 16:17, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Lab Sample ID: S62468.12
Sample Tag: Trip Blank
Collected Date/Time: 05/23/2024 00:01
Matrix: Water
COC Reference: 1

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40mL Glass	HCL	Yes	7.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/28/24 12:30	BDO	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/25/24 03:25, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	

Lab Sample ID: S62468.12 (continued)
Sample Tag: Trip Blank

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/25/24 03:25, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Lab Sample ID: S62468.13
Sample Tag: Dup-11_052324
Collected Date/Time: 05/23/2024 00:01
Matrix: Groundwater
COC Reference: 1

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	7.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/28/24 12:30	BDO	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/24/24 19:30, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	6	1		ug/L	1	123-91-1	

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/25/24 05:24, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	11	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	

Lab Sample ID: S62468.13 (continued)
Sample Tag: Dup-11_052324

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/25/24 05:24, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Lab Sample ID: S62468.14
Sample Tag: Dup-13_052224
Collected Date/Time: 05/22/2024 00:01
Matrix: Groundwater
COC Reference: 1

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	7.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/28/24 12:30	BDO	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 05/24/24 19:55, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	Not detected	1		ug/L	1	123-91-1	

Lab Sample ID: S62468.15
Sample Tag: MWBP-10-UST5-6_052324
Collected Date/Time: 05/23/2024 11:50
Matrix: Groundwater
COC Reference: 2

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	125mL Plastic	HNO3	Yes	7.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	05/29/24 12:10	CCM	
Metal Digestion	Completed	SW3015A	05/29/24 12:10	CCM	

Metals

Method: E200.8, Run Date: 05/29/24 13:52, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.044	0.002		mg/L	5	7440-38-2	
Chromium	Not detected	0.005		mg/L	5	7440-47-3	
Copper	Not detected	0.005		mg/L	5	7440-50-8	
Lead	Not detected	0.003		mg/L	5	7439-92-1	
Nickel	Not detected	0.005		mg/L	5	7440-02-0	
Vanadium	Not detected	0.005		mg/L	5	7440-62-2	

Method: E200.8, Run Date: 05/29/24 13:54, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.006	0.002		mg/L	5	7440-38-2	
Chromium, Dissolved	Not detected	0.005		mg/L	5	7440-47-3	
Copper, Dissolved	Not detected	0.005		mg/L	5	7440-50-8	
Lead, Dissolved	Not detected	0.003		mg/L	5	7439-92-1	
Nickel, Dissolved	Not detected	0.005		mg/L	5	7440-02-0	
Vanadium, Dissolved	Not detected	0.005		mg/L	5	7440-62-2	

Lab Sample ID: S62468.16
Sample Tag: MWBP-11-UST1-4_052324
Collected Date/Time: 05/23/2024 13:20
Matrix: Groundwater
COC Reference: 2

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	125mL Plastic	HNO3	Yes	7.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	05/29/24 12:10	CCM	
Metal Digestion	Completed	SW3015A	05/29/24 12:10	CCM	

Metals

Method: E200.8, Run Date: 05/29/24 14:03, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.007	0.002		mg/L	5	7440-38-2	
Chromium	Not detected	0.005		mg/L	5	7440-47-3	
Copper	Not detected	0.005		mg/L	5	7440-50-8	
Lead	Not detected	0.003		mg/L	5	7439-92-1	
Nickel	Not detected	0.005		mg/L	5	7440-02-0	
Vanadium	Not detected	0.005		mg/L	5	7440-62-2	

Method: E200.8, Run Date: 05/29/24 14:06, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.006	0.002		mg/L	5	7440-38-2	
Chromium, Dissolved	Not detected	0.005		mg/L	5	7440-47-3	
Copper, Dissolved	Not detected	0.005		mg/L	5	7440-50-8	
Lead, Dissolved	Not detected	0.003		mg/L	5	7439-92-1	
Nickel, Dissolved	Not detected	0.005		mg/L	5	7440-02-0	
Vanadium, Dissolved	Not detected	0.005		mg/L	5	7440-62-2	

Lab Sample ID: S62468.17
Sample Tag: MWBP-12-UST1-4_052324
Collected Date/Time: 05/23/2024 14:15
Matrix: Groundwater
COC Reference: 2

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	125mL Plastic	HNO3	Yes	7.3	IR
3	40mL Glass	HCL	Yes	7.3	IR
2	1L Amber	None	Yes	7.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/28/24 12:30	BDO	
Metal Digestion	Completed	SW3015A	05/29/24 12:10	CCM	
Metal Digestion	Completed	SW3015A	05/29/24 12:10	CCM	
BNA Extraction	Completed	SW3510C	05/29/24 15:00	JWR	

Metals

Method: E200.8, Run Date: 05/29/24 14:09, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.003	0.002		mg/L	5	7440-38-2	
Chromium	Not detected	0.005		mg/L	5	7440-47-3	
Copper	Not detected	0.005		mg/L	5	7440-50-8	
Lead	Not detected	0.003		mg/L	5	7439-92-1	
Nickel	Not detected	0.005		mg/L	5	7440-02-0	
Vanadium	Not detected	0.005		mg/L	5	7440-62-2	

Method: E200.8, Run Date: 05/29/24 14:11, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.003	0.002		mg/L	5	7440-38-2	
Chromium, Dissolved	Not detected	0.005		mg/L	5	7440-47-3	
Copper, Dissolved	Not detected	0.005		mg/L	5	7440-50-8	
Lead, Dissolved	Not detected	0.003		mg/L	5	7439-92-1	
Nickel, Dissolved	Not detected	0.005		mg/L	5	7440-02-0	
Vanadium, Dissolved	Not detected	0.005		mg/L	5	7440-62-2	

Organics - Semi-Volatiles

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 05/31/24 01:43, Analyst: PL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acenaphthene	Not detected	5		ug/L	2	83-32-9	
Acenaphthylene	Not detected	5		ug/L	2	208-96-8	
Anthracene	Not detected	5		ug/L	2	120-12-7	
Benzo(a)anthracene	Not detected	1		ug/L	2	56-55-3	
Benzo(b)fluoranthene	Not detected	1		ug/L	2	205-99-2	
Benzo(k)fluoranthene	Not detected	1		ug/L	2	207-08-9	
Benzo(ghi)perylene	Not detected	1		ug/L	2	191-24-2	
Benzo(a)pyrene	Not detected	1		ug/L	2	50-32-8	
bis(2-Chloroethoxy)methane	Not detected	5		ug/L	2	111-91-1	
bis(2-Chloroethyl)ether	Not detected	5		ug/L	2	111-44-4	
bis(2-Chloroisopropyl)ether*	Not detected	5		ug/L	2	108-60-1	
bis(2-Ethylhexyl)phthalate	Not detected	5		ug/L	2	117-81-7	
4-Bromophenyl phenyl ether	Not detected	5		ug/L	2	101-55-3	

Lab Sample ID: S62468.17 (continued)
Sample Tag: MWBP-12-UST1-4_052324

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 05/31/24 01:43, Analyst: PL (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Butyl benzyl phthalate	Not detected	5		ug/L	2	85-68-7	
4-Chloroaniline	Not detected	10		ug/L	2	106-47-8	
2-Chloronaphthalene	Not detected	5		ug/L	2	91-58-7	
4-Chloro-3-methylphenol	Not detected	5		ug/L	2	59-50-7	
2-Chlorophenol	Not detected	10		ug/L	2	95-57-8	
4-Chlorophenyl phenyl ether	Not detected	5		ug/L	2	7005-72-3	
Chrysene	Not detected	1		ug/L	2	218-01-9	
3-, 4-Methylphenol (p,m-Cresol)	Not detected	20		ug/L	2	3/4-CRESOL	
2-Methylphenol (o-Cresol)	Not detected	10		ug/L	2	95-48-7	
Dibenzo(ah)anthracene	Not detected	2		ug/L	2	53-70-3	
Dibenzofuran	Not detected	4		ug/L	2	132-64-9	
di-n-Butyl phthalate	Not detected	5		ug/L	2	84-74-2	
1,2-Dichlorobenzene	Not detected	1		ug/L	2	95-50-1	
1,3-Dichlorobenzene	Not detected	1		ug/L	2	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	2	106-46-7	
3,3'-Dichlorobenzidine	Not detected	5		ug/L	2	91-94-1	
2,4-Dichlorophenol	Not detected	10		ug/L	2	120-83-2	
Diethyl phthalate	Not detected	5		ug/L	2	84-66-2	
2,4-Dimethylphenol	Not detected	5		ug/L	2	105-67-9	
Dimethyl phthalate	Not detected	5		ug/L	2	131-11-3	
4,6-Dinitro-2-methylphenol	Not detected	20		ug/L	2	534-52-1	
2,4-Dinitrophenol	Not detected	25		ug/L	2	51-28-5	
2,4-Dinitrotoluene	Not detected	5		ug/L	2	121-14-2	
2,6-Dinitrotoluene	Not detected	5		ug/L	2	606-20-2	
1,2-Diphenylhydrazine*	Not detected	5		ug/L	2	122-66-7	
di-n-Octyl phthalate	Not detected	5		ug/L	2	117-84-0	
Fluoranthene	Not detected	1		ug/L	2	206-44-0	
Fluorene	Not detected	5		ug/L	2	86-73-7	
Hexachlorobenzene	Not detected	5		ug/L	2	118-74-1	
Hexachlorobutadiene	Not detected	10		ug/L	2	87-68-3	
Hexachlorocyclopentadiene*	Not detected	5		ug/L	2	77-47-4	
Hexachloroethane	Not detected	5		ug/L	2	67-72-1	
Indeno(1,2,3-cd)pyrene	Not detected	2		ug/L	2	193-39-5	
Isophorone	Not detected	5		ug/L	2	78-59-1	
2-Methylnaphthalene	Not detected	5		ug/L	2	91-57-6	
Naphthalene	Not detected	5		ug/L	2	91-20-3	
2-Nitroaniline	Not detected	25		ug/L	2	88-74-4	
3-Nitroaniline	Not detected	25		ug/L	2	99-09-2	
4-Nitroaniline	Not detected	25		ug/L	2	100-01-6	
Nitrobenzene	Not detected	5		ug/L	2	98-95-3	
2-Nitrophenol	Not detected	5		ug/L	2	88-75-5	
4-Nitrophenol	Not detected	25		ug/L	2	100-02-7	
N-Nitrosodiphenylamine	Not detected	5		ug/L	2	86-30-6	
N-Nitrosodi-n-propylamine	Not detected	5		ug/L	2	621-64-7	
Pentachlorophenol	Not detected	5		ug/L	2	87-86-5	
Phenanthrene	Not detected	2		ug/L	2	85-01-8	
Phenol	Not detected	5		ug/L	2	108-95-2	
Pyrene	Not detected	5		ug/L	2	129-00-0	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	2	120-82-1	
2,4,5-Trichlorophenol	Not detected	5		ug/L	2	95-95-4	

Lab Sample ID: S62468.17 (continued)
Sample Tag: MWBP-12-UST1-4_052324

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 05/31/24 01:43, Analyst: PL (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
2,4,6-Trichlorophenol	Not detected	4		ug/L	2	88-06-2	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/25/24 05:48, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	1	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	1	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	

Lab Sample ID: S62468.17 (continued)
Sample Tag: MWBP-12-UST1-4_052324

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/25/24 05:48, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Lab Sample ID: S62468.18
Sample Tag: P6-SB-07_052324
Collected Date/Time: 05/23/2024 15:55
Matrix: Groundwater
COC Reference: 2

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Amber	None	Yes	7.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
BNA Extraction	Completed	SW3510C	05/29/24 15:00	JWR	

Organics - Semi-Volatiles

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 05/31/24 02:14, Analyst: PL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acenaphthene	Not detected	5		ug/L	2	83-32-9	
Acenaphthylene	Not detected	5		ug/L	2	208-96-8	
Anthracene	Not detected	5		ug/L	2	120-12-7	
Benzo(a)anthracene	Not detected	1		ug/L	2	56-55-3	
Benzo(b)fluoranthene	Not detected	1		ug/L	2	205-99-2	
Benzo(k)fluoranthene	Not detected	1		ug/L	2	207-08-9	
Benzo(ghi)perylene	Not detected	1		ug/L	2	191-24-2	
Benzo(a)pyrene	Not detected	1		ug/L	2	50-32-8	
bis(2-Chloroethoxy)methane	Not detected	5		ug/L	2	111-91-1	
bis(2-Chloroethyl)ether	Not detected	5		ug/L	2	111-44-4	
bis(2-Chloroisopropyl)ether*	Not detected	5		ug/L	2	108-60-1	
bis(2-Ethylhexyl)phthalate	Not detected	5		ug/L	2	117-81-7	
4-Bromophenyl phenyl ether	Not detected	5		ug/L	2	101-55-3	
Butyl benzyl phthalate	Not detected	5		ug/L	2	85-68-7	
4-Chloroaniline	Not detected	10		ug/L	2	106-47-8	
2-Chloronaphthalene	Not detected	5		ug/L	2	91-58-7	
4-Chloro-3-methylphenol	Not detected	5		ug/L	2	59-50-7	
2-Chlorophenol	Not detected	10		ug/L	2	95-57-8	
4-Chlorophenyl phenyl ether	Not detected	5		ug/L	2	7005-72-3	
Chrysene	Not detected	1		ug/L	2	218-01-9	
3-, 4-Methylphenol (p,m-Cresol)	Not detected	20		ug/L	2	3/4-CRESOL	
2-Methylphenol (o-Cresol)	Not detected	10		ug/L	2	95-48-7	
Dibenzo(ah)anthracene	Not detected	2		ug/L	2	53-70-3	
Dibenzofuran	Not detected	4		ug/L	2	132-64-9	
di-n-Butyl phthalate	Not detected	5		ug/L	2	84-74-2	
1,2-Dichlorobenzene	Not detected	1		ug/L	2	95-50-1	
1,3-Dichlorobenzene	Not detected	1		ug/L	2	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	2	106-46-7	
3,3'-Dichlorobenzidine	Not detected	5		ug/L	2	91-94-1	
2,4-Dichlorophenol	Not detected	10		ug/L	2	120-83-2	
Diethyl phthalate	Not detected	5		ug/L	2	84-66-2	
2,4-Dimethylphenol	Not detected	5		ug/L	2	105-67-9	
Dimethyl phthalate	Not detected	5		ug/L	2	131-11-3	
4,6-Dinitro-2-methylphenol	Not detected	20		ug/L	2	534-52-1	
2,4-Dinitrophenol	Not detected	25		ug/L	2	51-28-5	
2,4-Dinitrotoluene	Not detected	5		ug/L	2	121-14-2	
2,6-Dinitrotoluene	Not detected	5		ug/L	2	606-20-2	

Lab Sample ID: S62468.18 (continued)
Sample Tag: P6-SB-07_052324

Semi-Volatile Organics - MDEQ, Method: SW8270D, Run Date: 05/31/24 02:14, Analyst: PL (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,2-Diphenylhydrazine*	Not detected	5		ug/L	2	122-66-7	
di-n-Octyl phthalate	Not detected	5		ug/L	2	117-84-0	
Fluoranthene	Not detected	1		ug/L	2	206-44-0	
Fluorene	Not detected	5		ug/L	2	86-73-7	
Hexachlorobenzene	Not detected	5		ug/L	2	118-74-1	
Hexachlorobutadiene	Not detected	10		ug/L	2	87-68-3	
Hexachlorocyclopentadiene*	Not detected	5		ug/L	2	77-47-4	
Hexachloroethane	Not detected	5		ug/L	2	67-72-1	
Indeno(1,2,3-cd)pyrene	Not detected	2		ug/L	2	193-39-5	
Isophorone	Not detected	5		ug/L	2	78-59-1	
2-Methylnaphthalene	Not detected	5		ug/L	2	91-57-6	
Naphthalene	Not detected	5		ug/L	2	91-20-3	
2-Nitroaniline	Not detected	25		ug/L	2	88-74-4	
3-Nitroaniline	Not detected	25		ug/L	2	99-09-2	
4-Nitroaniline	Not detected	25		ug/L	2	100-01-6	
Nitrobenzene	Not detected	5		ug/L	2	98-95-3	
2-Nitrophenol	Not detected	5		ug/L	2	88-75-5	
4-Nitrophenol	Not detected	25		ug/L	2	100-02-7	
N-Nitrosodiphenylamine	Not detected	5		ug/L	2	86-30-6	
N-Nitrosodi-n-propylamine	Not detected	5		ug/L	2	621-64-7	
Pentachlorophenol	Not detected	5		ug/L	2	87-86-5	
Phenanthrene	Not detected	2		ug/L	2	85-01-8	
Phenol	Not detected	5		ug/L	2	108-95-2	
Pyrene	Not detected	5		ug/L	2	129-00-0	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	2	120-82-1	
2,4,5-Trichlorophenol	Not detected	5		ug/L	2	95-95-4	
2,4,6-Trichlorophenol	Not detected	4		ug/L	2	88-06-2	

Lab Sample ID: S62468.19
Sample Tag: MW-12-13_052324
Collected Date/Time: 05/23/2024 12:45
Matrix: Groundwater
COC Reference: 167352

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125mL Plastic	HNO3	Yes	7.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	05/29/24 12:10	CCM	

Metals

Method: E200.8, Run Date: 05/29/24 14:13, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	Not detected	0.002		mg/L	5	7440-38-2	
Chromium	Not detected	0.005		mg/L	5	7440-47-3	
Copper	Not detected	0.005		mg/L	5	7440-50-8	
Lead	Not detected	0.003		mg/L	5	7439-92-1	
Nickel	Not detected	0.005		mg/L	5	7440-02-0	
Vanadium	Not detected	0.005		mg/L	5	7440-62-2	

Lab Sample ID: S62468.20
Sample Tag: MW-13-36R_052324
Collected Date/Time: 05/23/2024 14:05
Matrix: Groundwater
COC Reference: 167352

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125mL Plastic	HNO3	Yes	7.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	05/29/24 12:10	CCM	

Metals

Method: E200.8, Run Date: 05/29/24 14:17, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	Not detected	0.002		mg/L	5	7440-38-2	
Chromium	Not detected	0.005		mg/L	5	7440-47-3	
Copper	Not detected	0.005		mg/L	5	7440-50-8	
Lead	Not detected	0.003		mg/L	5	7439-92-1	
Nickel	Not detected	0.005		mg/L	5	7440-02-0	
Vanadium	0.008	0.005		mg/L	5	7440-62-2	

Analytical Laboratory Report

Lab Sample ID: S62468.21
Sample Tag: MW-14-66_052324
Collected Date/Time: 05/23/2024 14:50
Matrix: Groundwater
COC Reference: 167352

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	125mL Plastic	HNO3	Yes	7.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	05/29/24 12:10	CCM	
Metal Digestion	Completed	SW3015A	05/29/24 12:10	CCM	

Metals

Method: E200.8, Run Date: 05/29/24 14:19, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.003	0.002		mg/L	5	7440-38-2	
Chromium	Not detected	0.005		mg/L	5	7440-47-3	
Copper	Not detected	0.005		mg/L	5	7440-50-8	
Lead	Not detected	0.003		mg/L	5	7439-92-1	
Nickel	Not detected	0.005		mg/L	5	7440-02-0	
Vanadium	Not detected	0.005		mg/L	5	7440-62-2	

Method: E200.8, Run Date: 05/29/24 14:21, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.003	0.002		mg/L	5	7440-38-2	
Chromium, Dissolved	Not detected	0.005		mg/L	5	7440-47-3	
Copper, Dissolved	Not detected	0.005		mg/L	5	7440-50-8	
Lead, Dissolved	Not detected	0.003		mg/L	5	7439-92-1	
Nickel, Dissolved	Not detected	0.005		mg/L	5	7440-02-0	
Vanadium, Dissolved	Not detected	0.005		mg/L	5	7440-62-2	

Lab Sample ID: S62468.22
Sample Tag: MW-14-67_052324
Collected Date/Time: 05/23/2024 15:15
Matrix: Groundwater
COC Reference: 167352

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125mL Plastic	HNO3	Yes	7.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	05/29/24 12:10	CCM	

Metals

Method: E200.8, Run Date: 05/29/24 14:23, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	Not detected	0.002		mg/L	5	7440-38-2	
Chromium	Not detected	0.005		mg/L	5	7440-47-3	
Copper	Not detected	0.005		mg/L	5	7440-50-8	
Lead	Not detected	0.003		mg/L	5	7439-92-1	
Nickel	Not detected	0.005		mg/L	5	7440-02-0	
Vanadium	Not detected	0.005		mg/L	5	7440-62-2	

Lab Sample ID: S62468.23
Sample Tag: DUP-12_052324
Collected Date/Time: 05/23/2024 00:01
Matrix: Groundwater
COC Reference: 167352

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125mL Plastic	HNO3	Yes	7.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	05/29/24 12:10	CCM	

Metals

Method: E200.8, Run Date: 05/29/24 14:25, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	Not detected	0.002		mg/L	5	7440-38-2	
Chromium	Not detected	0.005		mg/L	5	7440-47-3	
Copper	Not detected	0.005		mg/L	5	7440-50-8	
Lead	Not detected	0.003		mg/L	5	7439-92-1	
Nickel	Not detected	0.005		mg/L	5	7440-02-0	
Vanadium	0.009	0.005		mg/L	5	7440-62-2	

Lab Sample ID: S62468.24
Sample Tag: MW-04-05(6)_052324
Collected Date/Time: 05/23/2024 13:05
Matrix: Groundwater
COC Reference: 167352

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	7.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/28/24 12:30	BDO	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/25/24 06:11, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	

Lab Sample ID: S62468.24 (continued)
Sample Tag: MW-04-05(6)_052324

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/25/24 06:11, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Quality Control Report

Report ID: S62468.01(01)+QC01
Generated on 05/31/2024

Report to

Attention: Kaitlyn Hunt
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 C:947-777-5215 FAX:

Report Produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S62468.01-S62468.24
Project: 30214036.0470A / RACER Lansing GWS
Submitted Date/Time: 05/24/2024 08:00
Sampled by: Donald Richmond / Billy Cobern
P.O. #: US3460016166

QC Report Sections

Cover Page (Page 42)
Analysis Summary (Pages 43-66)
Prep Batch Summary (Pages 67-69)
Surrogates per Lab Sample (Pages 70-77)
Surrogates per QC Sample (Pages 78-82)
Internal Standards per Lab Sample (Pages 83-97)
Internal Standards per QC Sample (Pages 98-102)
Batch QC Results (Pages 103-120)

Report Flag Descriptions

*: QC result is outside of indicated control limits
W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.

Barbara Ball
Quality Assurance Manager

Lab Sample ID: S62468.01
Sample Tag: MW-04-06R_052224
Collected Date/Time: 05/22/2024 11:15
Matrix: Groundwater
COC Reference: 1

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/24/24 15:50	K240524	VS240524W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S62468.02

Sample Tag: MW-04-01(6)_052224

Collected Date/Time: 05/22/2024 13:05

Matrix: Groundwater

COC Reference: 1

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/24/24 16:14	K240524	VS240524W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S62468.03

Sample Tag: MW-04-01(6)_052224 MS

Collected Date/Time: 05/22/2024 13:05

Matrix: Groundwater

COC Reference: 1

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/24/24 20:19	K240524	VS240524W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S62468.04

Sample Tag: MW-04-01(6)_052224 MSD

Collected Date/Time: 05/22/2024 13:05

Matrix: Groundwater

COC Reference: 1

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/24/24 20:44	K240524	VS240524W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S62468.05

Sample Tag: MW-04-04R_052224

Collected Date/Time: 05/22/2024 15:00

Matrix: Groundwater

COC Reference: 1

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/24/24 16:39	K240524	VS240524W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S62468.06
Sample Tag: MW-21-141_052224
Collected Date/Time: 05/22/2024 16:40
Matrix: Groundwater
COC Reference: 1

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/24/24 17:03	K240524	VS240524W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S62468.07
Sample Tag: MW-13-50_052324
Collected Date/Time: 05/23/2024 09:55
Matrix: Groundwater
COC Reference: 1

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/24/24 17:28	K240524	VS240524W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S62468.08
Sample Tag: MW-13-52_052324
Collected Date/Time: 05/23/2024 11:20
Matrix: Groundwater
COC Reference: 1

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/24/24 17:52	K240524	VS240524W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S62468.09

Sample Tag: MW-03-06_052324

Collected Date/Time: 05/23/2024 13:10

Matrix: Groundwater

COC Reference: 1

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/24/24 18:17	K240524	VS240524W1	Yes	BLK/LCS/LCSD
Volatile Organics - DEQ List	SW5030C/8260C	05/28/24 15:53	240528A9	VF240528W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S62468.10

Sample Tag: MW-03-05_052324

Collected Date/Time: 05/23/2024 14:20

Matrix: Groundwater

COC Reference: 1

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/24/24 18:41	K240524	VS240524W1	Yes	BLK/LCS/LCSD
Volatile Organics - DEQ List	SW5030C/8260C	05/25/24 04:37	240524B7	VF240524W4	Yes	BLK/LCS/LCSD

Lab Sample ID: S62468.11
Sample Tag: MW-02-02(6)_052324
Collected Date/Time: 05/23/2024 15:40
Matrix: Groundwater
COC Reference: 1

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Semi-Volatiles						
Semi-Volatile Organics - MDEQ	SW8270D	05/31/24 01:13	P240530B	SF240529W1	Yes	BLK/LCS/LCSD
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/24/24 19:06	K240524	VS240524W1	Yes	BLK/LCS/LCSD
Volatile Organics - DEQ List	SW5030C/8260C	05/28/24 16:17	240528A9	VF240528W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S62468.12

Sample Tag: Trip Blank

Collected Date/Time: 05/23/2024 00:01

Matrix: Water

COC Reference: 1

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	05/25/24 03:25	240524B7	VF240524W4	Yes	BLK/LCS/LCSD

Lab Sample ID: S62468.13

Sample Tag: Dup-11_052324

Collected Date/Time: 05/23/2024 00:01

Matrix: Groundwater

COC Reference: 1

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/24/24 19:30	K240524	VS240524W1	Yes	BLK/LCS/LCSD
Volatile Organics - DEQ List	SW5030C/8260C	05/25/24 05:24	240524B7	VF240524W4	Yes	BLK/LCS/LCSD

Lab Sample ID: S62468.14
Sample Tag: Dup-13_052224
Collected Date/Time: 05/22/2024 00:01
Matrix: Groundwater
COC Reference: 1

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	05/24/24 19:55	K240524	VS240524W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S62468.15

Sample Tag: MWBP-10-UST5-6_052324

Collected Date/Time: 05/23/2024 11:50

Matrix: Groundwater

COC Reference: 2

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Metals						
Arsenic, Dissolved	E200.8	05/29/24 13:54	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Arsenic	E200.8	05/29/24 13:52	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Chromium, Dissolved	E200.8	05/29/24 13:54	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Chromium	E200.8	05/29/24 13:52	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Copper, Dissolved	E200.8	05/29/24 13:54	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Copper	E200.8	05/29/24 13:52	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Lead, Dissolved	E200.8	05/29/24 13:54	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Lead	E200.8	05/29/24 13:52	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Nickel, Dissolved	E200.8	05/29/24 13:54	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Nickel	E200.8	05/29/24 13:52	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Vanadium, Dissolved	E200.8	05/29/24 13:54	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Vanadium	E200.8	05/29/24 13:52	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD

Lab Sample ID: S62468.16

Sample Tag: MWBP-11-UST1-4_052324

Collected Date/Time: 05/23/2024 13:20

Matrix: Groundwater

COC Reference: 2

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Metals						
Arsenic, Dissolved	E200.8	05/29/24 14:06	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Arsenic	E200.8	05/29/24 14:03	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Chromium, Dissolved	E200.8	05/29/24 14:06	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Chromium	E200.8	05/29/24 14:03	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Copper, Dissolved	E200.8	05/29/24 14:06	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Copper	E200.8	05/29/24 14:03	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Lead, Dissolved	E200.8	05/29/24 14:06	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Lead	E200.8	05/29/24 14:03	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Nickel, Dissolved	E200.8	05/29/24 14:06	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Nickel	E200.8	05/29/24 14:03	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Vanadium, Dissolved	E200.8	05/29/24 14:06	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Vanadium	E200.8	05/29/24 14:03	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD

Lab Sample ID: S62468.17

Sample Tag: MWBP-12-UST1-4_052324

Collected Date/Time: 05/23/2024 14:15

Matrix: Groundwater

COC Reference: 2

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Metals						
Arsenic, Dissolved	E200.8	05/29/24 14:11	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Arsenic	E200.8	05/29/24 14:09	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Chromium, Dissolved	E200.8	05/29/24 14:11	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Chromium	E200.8	05/29/24 14:09	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Copper, Dissolved	E200.8	05/29/24 14:11	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Copper	E200.8	05/29/24 14:09	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Lead, Dissolved	E200.8	05/29/24 14:11	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Lead	E200.8	05/29/24 14:09	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Nickel, Dissolved	E200.8	05/29/24 14:11	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Nickel	E200.8	05/29/24 14:09	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Vanadium, Dissolved	E200.8	05/29/24 14:11	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Vanadium	E200.8	05/29/24 14:09	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Organics - Semi-Volatiles						
Semi-Volatile Organics - MDEQ	SW8270D	05/31/24 01:43	P240530B	SF240529W1	Yes	BLK/LCS/LCSD
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	05/25/24 05:48	240524B7	VF240524W4	Yes	BLK/LCS/LCSD

Lab Sample ID: S62468.18
Sample Tag: P6-SB-07_052324
Collected Date/Time: 05/23/2024 15:55
Matrix: Groundwater
COC Reference: 2

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Semi-Volatiles						
Semi-Volatile Organics - MDEQ	SW8270D	05/31/24 02:14	P240530B	SF240529W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S62468.19

Sample Tag: MW-12-13_052324

Collected Date/Time: 05/23/2024 12:45

Matrix: Groundwater

COC Reference: 167352

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Metals						
Arsenic	E200.8	05/29/24 14:13	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Chromium	E200.8	05/29/24 14:13	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Copper	E200.8	05/29/24 14:13	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Lead	E200.8	05/29/24 14:13	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Nickel	E200.8	05/29/24 14:13	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Vanadium	E200.8	05/29/24 14:13	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD

Lab Sample ID: S62468.20

Sample Tag: MW-13-36R_052324

Collected Date/Time: 05/23/2024 14:05

Matrix: Groundwater

COC Reference: 167352

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Metals						
Arsenic	E200.8	05/29/24 14:17	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Chromium	E200.8	05/29/24 14:17	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Copper	E200.8	05/29/24 14:17	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Lead	E200.8	05/29/24 14:17	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Nickel	E200.8	05/29/24 14:17	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Vanadium	E200.8	05/29/24 14:17	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD

Lab Sample ID: S62468.21

Sample Tag: MW-14-66_052324

Collected Date/Time: 05/23/2024 14:50

Matrix: Groundwater

COC Reference: 167352

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Metals						
Arsenic, Dissolved	E200.8	05/29/24 14:21	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Arsenic	E200.8	05/29/24 14:19	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Chromium, Dissolved	E200.8	05/29/24 14:21	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Chromium	E200.8	05/29/24 14:19	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Copper, Dissolved	E200.8	05/29/24 14:21	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Copper	E200.8	05/29/24 14:19	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Lead, Dissolved	E200.8	05/29/24 14:21	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Lead	E200.8	05/29/24 14:19	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Nickel, Dissolved	E200.8	05/29/24 14:21	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Nickel	E200.8	05/29/24 14:19	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Vanadium, Dissolved	E200.8	05/29/24 14:21	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Vanadium	E200.8	05/29/24 14:19	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD

Lab Sample ID: S62468.22

Sample Tag: MW-14-67_052324

Collected Date/Time: 05/23/2024 15:15

Matrix: Groundwater

COC Reference: 167352

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Metals						
Arsenic	E200.8	05/29/24 14:23	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Chromium	E200.8	05/29/24 14:23	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Copper	E200.8	05/29/24 14:23	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Lead	E200.8	05/29/24 14:23	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Nickel	E200.8	05/29/24 14:23	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Vanadium	E200.8	05/29/24 14:23	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD

Lab Sample ID: S62468.23

Sample Tag: DUP-12_052324

Collected Date/Time: 05/23/2024 00:01

Matrix: Groundwater

COC Reference: 167352

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Metals						
Arsenic	E200.8	05/29/24 14:25	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Chromium	E200.8	05/29/24 14:25	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Copper	E200.8	05/29/24 14:25	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Lead	E200.8	05/29/24 14:25	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Nickel	E200.8	05/29/24 14:25	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD
Vanadium	E200.8	05/29/24 14:25	MT4-24-0529B	MTD-052924-4	No	BLK/LCS/MS/MSD

Lab Sample ID: S62468.24
Sample Tag: MW-04-05(6)_052324
Collected Date/Time: 05/23/2024 13:05
Matrix: Groundwater
COC Reference: 167352

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	05/25/24 06:11	240524B7	VF240524W4	Yes	BLK/LCS/LCSD

Metals, Prep Batch ID: MTD-052924-4

Surrogates: No, QC Types: BLK/LCS/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S62468.15	Arsenic, Dissolved	E200.8	05/29/24 13:54	MT4-24-0529B
S62468.15	Arsenic	E200.8	05/29/24 13:52	MT4-24-0529B
S62468.15	Chromium, Dissolved	E200.8	05/29/24 13:54	MT4-24-0529B
S62468.15	Chromium	E200.8	05/29/24 13:52	MT4-24-0529B
S62468.15	Copper, Dissolved	E200.8	05/29/24 13:54	MT4-24-0529B
S62468.15	Copper	E200.8	05/29/24 13:52	MT4-24-0529B
S62468.15	Lead, Dissolved	E200.8	05/29/24 13:54	MT4-24-0529B
S62468.15	Lead	E200.8	05/29/24 13:52	MT4-24-0529B
S62468.15	Nickel, Dissolved	E200.8	05/29/24 13:54	MT4-24-0529B
S62468.15	Nickel	E200.8	05/29/24 13:52	MT4-24-0529B
S62468.15	Vanadium, Dissolved	E200.8	05/29/24 13:54	MT4-24-0529B
S62468.15	Vanadium	E200.8	05/29/24 13:52	MT4-24-0529B
S62468.16	Arsenic, Dissolved	E200.8	05/29/24 14:06	MT4-24-0529B
S62468.16	Arsenic	E200.8	05/29/24 14:03	MT4-24-0529B
S62468.16	Chromium, Dissolved	E200.8	05/29/24 14:06	MT4-24-0529B
S62468.16	Chromium	E200.8	05/29/24 14:03	MT4-24-0529B
S62468.16	Copper, Dissolved	E200.8	05/29/24 14:06	MT4-24-0529B
S62468.16	Copper	E200.8	05/29/24 14:03	MT4-24-0529B
S62468.16	Lead, Dissolved	E200.8	05/29/24 14:06	MT4-24-0529B
S62468.16	Lead	E200.8	05/29/24 14:03	MT4-24-0529B
S62468.16	Nickel, Dissolved	E200.8	05/29/24 14:06	MT4-24-0529B
S62468.16	Nickel	E200.8	05/29/24 14:03	MT4-24-0529B
S62468.16	Vanadium, Dissolved	E200.8	05/29/24 14:06	MT4-24-0529B
S62468.16	Vanadium	E200.8	05/29/24 14:03	MT4-24-0529B
S62468.17	Arsenic, Dissolved	E200.8	05/29/24 14:11	MT4-24-0529B
S62468.17	Arsenic	E200.8	05/29/24 14:09	MT4-24-0529B
S62468.17	Chromium, Dissolved	E200.8	05/29/24 14:11	MT4-24-0529B
S62468.17	Chromium	E200.8	05/29/24 14:09	MT4-24-0529B
S62468.17	Copper, Dissolved	E200.8	05/29/24 14:11	MT4-24-0529B
S62468.17	Copper	E200.8	05/29/24 14:09	MT4-24-0529B
S62468.17	Lead, Dissolved	E200.8	05/29/24 14:11	MT4-24-0529B
S62468.17	Lead	E200.8	05/29/24 14:09	MT4-24-0529B
S62468.17	Nickel, Dissolved	E200.8	05/29/24 14:11	MT4-24-0529B
S62468.17	Nickel	E200.8	05/29/24 14:09	MT4-24-0529B
S62468.17	Vanadium, Dissolved	E200.8	05/29/24 14:11	MT4-24-0529B
S62468.17	Vanadium	E200.8	05/29/24 14:09	MT4-24-0529B
S62468.19	Arsenic	E200.8	05/29/24 14:13	MT4-24-0529B
S62468.19	Chromium	E200.8	05/29/24 14:13	MT4-24-0529B
S62468.19	Copper	E200.8	05/29/24 14:13	MT4-24-0529B
S62468.19	Lead	E200.8	05/29/24 14:13	MT4-24-0529B
S62468.19	Nickel	E200.8	05/29/24 14:13	MT4-24-0529B
S62468.19	Vanadium	E200.8	05/29/24 14:13	MT4-24-0529B
S62468.20	Arsenic	E200.8	05/29/24 14:17	MT4-24-0529B
S62468.20	Chromium	E200.8	05/29/24 14:17	MT4-24-0529B
S62468.20	Copper	E200.8	05/29/24 14:17	MT4-24-0529B
S62468.20	Lead	E200.8	05/29/24 14:17	MT4-24-0529B
S62468.20	Nickel	E200.8	05/29/24 14:17	MT4-24-0529B
S62468.20	Vanadium	E200.8	05/29/24 14:17	MT4-24-0529B
S62468.21	Arsenic, Dissolved	E200.8	05/29/24 14:21	MT4-24-0529B
S62468.21	Arsenic	E200.8	05/29/24 14:19	MT4-24-0529B

Metals, Prep Batch ID: MTD-052924-4 (continued)

Surrogates: No, QC Types: BLK/LCS/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S62468.21	Chromium, Dissolved	E200.8	05/29/24 14:21	MT4-24-0529B
S62468.21	Chromium	E200.8	05/29/24 14:19	MT4-24-0529B
S62468.21	Copper, Dissolved	E200.8	05/29/24 14:21	MT4-24-0529B
S62468.21	Copper	E200.8	05/29/24 14:19	MT4-24-0529B
S62468.21	Lead, Dissolved	E200.8	05/29/24 14:21	MT4-24-0529B
S62468.21	Lead	E200.8	05/29/24 14:19	MT4-24-0529B
S62468.21	Nickel, Dissolved	E200.8	05/29/24 14:21	MT4-24-0529B
S62468.21	Nickel	E200.8	05/29/24 14:19	MT4-24-0529B
S62468.21	Vanadium, Dissolved	E200.8	05/29/24 14:21	MT4-24-0529B
S62468.21	Vanadium	E200.8	05/29/24 14:19	MT4-24-0529B
S62468.22	Arsenic	E200.8	05/29/24 14:23	MT4-24-0529B
S62468.22	Chromium	E200.8	05/29/24 14:23	MT4-24-0529B
S62468.22	Copper	E200.8	05/29/24 14:23	MT4-24-0529B
S62468.22	Lead	E200.8	05/29/24 14:23	MT4-24-0529B
S62468.22	Nickel	E200.8	05/29/24 14:23	MT4-24-0529B
S62468.22	Vanadium	E200.8	05/29/24 14:23	MT4-24-0529B
S62468.23	Arsenic	E200.8	05/29/24 14:25	MT4-24-0529B
S62468.23	Chromium	E200.8	05/29/24 14:25	MT4-24-0529B
S62468.23	Copper	E200.8	05/29/24 14:25	MT4-24-0529B
S62468.23	Lead	E200.8	05/29/24 14:25	MT4-24-0529B
S62468.23	Nickel	E200.8	05/29/24 14:25	MT4-24-0529B
S62468.23	Vanadium	E200.8	05/29/24 14:25	MT4-24-0529B

Organics - Semi-Volatiles, Prep Batch ID: SF240529W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S62468.11	Semi-Volatile Organics - MDEQ	SW8270D	05/31/24 01:13	P240530B
S62468.17	Semi-Volatile Organics - MDEQ	SW8270D	05/31/24 01:43	P240530B
S62468.18	Semi-Volatile Organics - MDEQ	SW8270D	05/31/24 02:14	P240530B

Organics - Volatiles, Prep Batch ID: VF240524W4

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S62468.10	Volatile Organics - DEQ List	SW5030C/8260C	05/25/24 04:37	240524B7
S62468.12	Volatile Organics - DEQ List	SW5030C/8260C	05/25/24 03:25	240524B7
S62468.13	Volatile Organics - DEQ List	SW5030C/8260C	05/25/24 05:24	240524B7
S62468.17	Volatile Organics - DEQ List	SW5030C/8260C	05/25/24 05:48	240524B7
S62468.24	Volatile Organics - DEQ List	SW5030C/8260C	05/25/24 06:11	240524B7

Organics - Volatiles, Prep Batch ID: VF240528W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S62468.09	Volatile Organics - DEQ List	SW5030C/8260C	05/28/24 15:53	240528A9
S62468.11	Volatile Organics - DEQ List	SW5030C/8260C	05/28/24 16:17	240528A9

Organics - Volatiles, Prep Batch ID: VS240524W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S62468.01	1,4-Dioxane	SW8260B - SIM	05/24/24 15:50	K240524

Organics - Volatiles, Prep Batch ID: VS240524W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S62468.02	1,4-Dioxane	SW8260B - SIM	05/24/24 16:14	K240524
S62468.03	1,4-Dioxane	SW8260B - SIM	05/24/24 20:19	K240524
S62468.04	1,4-Dioxane	SW8260B - SIM	05/24/24 20:44	K240524
S62468.05	1,4-Dioxane	SW8260B - SIM	05/24/24 16:39	K240524
S62468.06	1,4-Dioxane	SW8260B - SIM	05/24/24 17:03	K240524
S62468.07	1,4-Dioxane	SW8260B - SIM	05/24/24 17:28	K240524
S62468.08	1,4-Dioxane	SW8260B - SIM	05/24/24 17:52	K240524
S62468.09	1,4-Dioxane	SW8260B - SIM	05/24/24 18:17	K240524
S62468.10	1,4-Dioxane	SW8260B - SIM	05/24/24 18:41	K240524
S62468.11	1,4-Dioxane	SW8260B - SIM	05/24/24 19:06	K240524
S62468.13	1,4-Dioxane	SW8260B - SIM	05/24/24 19:30	K240524
S62468.14	1,4-Dioxane	SW8260B - SIM	05/24/24 19:55	K240524

QC Report - Surrogates per Lab Sample

Lab Sample ID: S62468.09

Sample Tag: MW-03-06_052324

Collected Date/Time: 05/23/2024 13:10

Matrix: Groundwater

COC Reference: 1

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240528A9, Run Date: 05/28/2024 15:53, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**111.5**	80.0	124.0
1,2-Dichloroethane-D4		**97.7**	72.0	125.0
Toluene-D8		**93.5**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S62468.10

Sample Tag: MW-03-05_052324

Collected Date/Time: 05/23/2024 14:20

Matrix: Groundwater

COC Reference: 1

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240524B7, Run Date: 05/25/2024 04:37, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**103.1**	80.0	124.0
1,2-Dichloroethane-D4		**92.2**	72.0	125.0
Toluene-D8		**101.2**	89.0	112.0

Lab Sample ID: S62468.11

Sample Tag: MW-02-02(6)_052324

Collected Date/Time: 05/23/2024 15:40

Matrix: Groundwater

COC Reference: 1

Organics - Semi-Volatiles, Analysis: Semi-Volatile Organics - MDEQ

Run in Batch: P240530B, Run Date: 05/31/2024 01:13, Matrix: WW, Dilution: 2

Surrogate	Flags	%Rec	LCL	UCL
2-Fluorophenol		**30.0**	10.0	110.0
Phenol-D5		**23.5**	10.0	110.0
Nitrobenzene-D5		**65.4**	10.0	114.0
2-Fluorobiphenyl		**66.5**	10.0	116.0
2,4,6-Tribromophenol		**69.0**	10.0	123.0
Terphenyl-D14		**74.4**	10.0	141.0

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240528A9, Run Date: 05/28/2024 16:17, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**111.7**	80.0	124.0
1,2-Dichloroethane-D4		**95.5**	72.0	125.0
Toluene-D8		**93.1**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S62468.12

Sample Tag: Trip Blank

Collected Date/Time: 05/23/2024 00:01

Matrix: Water

COC Reference: 1

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240524B7, Run Date: 05/25/2024 03:25, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**109.5**	80.0	124.0
1,2-Dichloroethane-D4		**90.7**	72.0	125.0
Toluene-D8		**100.8**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S62468.13

Sample Tag: Dup-11_052324

Collected Date/Time: 05/23/2024 00:01

Matrix: Groundwater

COC Reference: 1

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240524B7, Run Date: 05/25/2024 05:24, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**119.1**	80.0	124.0
1,2-Dichloroethane-D4		**93.5**	72.0	125.0
Toluene-D8		**101.9**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S62468.17

Sample Tag: MWBP-12-UST1-4_052324

Collected Date/Time: 05/23/2024 14:15

Matrix: Groundwater

COC Reference: 2

Organics - Semi-Volatiles, Analysis: Semi-Volatile Organics - MDEQ

Run in Batch: P240530B, Run Date: 05/31/2024 01:43, Matrix: WW, Dilution: 2

Surrogate	Flags	%Rec	LCL	UCL
2-Fluorophenol		**31.8**	10.0	110.0
Phenol-D5		**25.4**	10.0	110.0
Nitrobenzene-D5		**67.5**	10.0	114.0
2-Fluorobiphenyl		**68.9**	10.0	116.0
2,4,6-Tribromophenol		**69.7**	10.0	123.0
Terphenyl-D14		**83.4**	10.0	141.0

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240524B7, Run Date: 05/25/2024 05:48, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**104.3**	80.0	124.0
1,2-Dichloroethane-D4		**93.8**	72.0	125.0
Toluene-D8		**101.5**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S62468.18

Sample Tag: P6-SB-07_052324

Collected Date/Time: 05/23/2024 15:55

Matrix: Groundwater

COC Reference: 2

Organics - Semi-Volatiles, Analysis: Semi-Volatile Organics - MDEQ

Run in Batch: P240530B, Run Date: 05/31/2024 02:14, Matrix: WW, Dilution: 2

Surrogate	Flags	**%Rec**	LCL	UCL
2-Fluorophenol		**32.0**	10.0	110.0
Phenol-D5		**24.7**	10.0	110.0
Nitrobenzene-D5		**69.5**	10.0	114.0
2-Fluorobiphenyl		**69.9**	10.0	116.0
2,4,6-Tribromophenol		**72.7**	10.0	123.0
Terphenyl-D14		**79.6**	10.0	141.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S62468.24

Sample Tag: MW-04-05(6)_052324

Collected Date/Time: 05/23/2024 13:05

Matrix: Groundwater

COC Reference: 167352

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240524B7, Run Date: 05/25/2024 06:11, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**104.2**	80.0	124.0
1,2-Dichloroethane-D4		**96.6**	72.0	125.0
Toluene-D8		**101.4**	89.0	112.0

Organics - Semi-Volatiles, Prep Batch ID: SF240529W1

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: H240529.BLKW29A

Run in Batch: H240529, Run Date: 05/29/2024 15:29, Prep Date: 05/29/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
2-Fluorobiphenyl		**51.8**	10.0	116.0

Blank (BLK)

Lab Sample ID: P240530.BLKW29A

Run in Batch: P240530, Run Date: 05/30/2024 15:09, Prep Date: 05/29/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
No Surrogates				

Blank (BLK)

Lab Sample ID: U240529.BLKW29A

Run in Batch: U240529, Run Date: 05/29/2024 14:40, Prep Date: 05/29/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
2-Fluorophenol		**30.3**	10.0	110.0
Phenol-D5		**21.5**	10.0	110.0
Nitrobenzene-D5		**49.5**	10.0	114.0
2-Fluorobiphenyl		**49.2**	10.0	116.0
2,4,6-Tribromophenol		**56.4**	10.0	123.0
Terphenyl-D14		**54.6**	10.0	141.0

Blank (BLK)

Lab Sample ID: U240530B.BLKW29A

Run in Batch: U240530B, Run Date: 05/30/2024 21:37, Prep Date: 05/29/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
No Surrogates				

Laboratory Control Sample (LCS)

Lab Sample ID: H240529.LCSW29A

Run in Batch: H240529, Run Date: 05/29/2024 15:50, Prep Date: 05/29/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
2-Fluorobiphenyl		**56.4**	10.0	116.0

Laboratory Control Sample (LCS)

Lab Sample ID: U240529.LCSW29A

Run in Batch: U240529, Run Date: 05/29/2024 16:50, Prep Date: 05/29/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
2-Fluorophenol		**26.4**	10.0	110.0
Phenol-D5		**19.6**	10.0	110.0
Nitrobenzene-D5		**52.9**	10.0	114.0
2-Fluorobiphenyl		**53.2**	10.0	116.0
2,4,6-Tribromophenol		**63.2**	10.0	123.0
Terphenyl-D14		**59.7**	10.0	141.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: H240529.LCSDW29A, Parent Sample ID: H240529.LCSW29A

Run in Batch: H240529, Run Date: 05/29/2024 16:07, Prep Date: 05/29/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
2-Fluorobiphenyl		**57.8**	10.0	116.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: U240529.LCSDW29A, Parent Sample ID: U240529.LCSW29A

Run in Batch: U240529, Run Date: 05/29/2024 17:21, Prep Date: 05/29/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
2-Fluorophenol		**27.2**	10.0	110.0
Phenol-D5		**20.6**	10.0	110.0
Nitrobenzene-D5		**53.8**	10.0	114.0
2-Fluorobiphenyl		**55.0**	10.0	116.0
2,4,6-Tribromophenol		**64.5**	10.0	123.0
Terphenyl-D14		**60.6**	10.0	141.0

Organics - Volatiles, Prep Batch ID: VF240524W4

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240524B7.BLKW24B

Run in Batch: 240524B7, Run Date: 05/25/2024 03:01, Prep Date: 05/24/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**103.7**	80.0	124.0
1,2-Dichloroethane-D4		**89.7**	72.0	125.0
Toluene-D8		**101.3**	89.0	112.0

Laboratory Control Sample (LCS)

Lab Sample ID: 240524B7.LCSW24B

Run in Batch: 240524B7, Run Date: 05/25/2024 01:27, Prep Date: 05/24/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**103.1**	80.0	124.0
1,2-Dichloroethane-D4		**95.6**	72.0	125.0
Toluene-D8		**102.6**	89.0	112.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240524B7.LCSDW24B, Parent Sample ID: 240524B7.LCSW24B

Run in Batch: 240524B7, Run Date: 05/25/2024 01:50, Prep Date: 05/24/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**107.5**	80.0	124.0
1,2-Dichloroethane-D4		**93.1**	72.0	125.0
Toluene-D8		**102.8**	89.0	112.0

Organics - Volatiles, Prep Batch ID: VF240528W1

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240528A9.BLKS28A

Run in Batch: 240528A9, Run Date: 05/28/2024 15:05, Prep Date: 05/28/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**110.8**	80.0	124.0
1,2-Dichloroethane-D4		**89.1**	72.0	125.0
Toluene-D8		**92.9**	89.0	112.0

Blank (BLK)

Lab Sample ID: 240528B9.BLKS28A

Run in Batch: 240528B9, Run Date: 05/28/2024 15:05, Prep Date: 05/28/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
Toluene-D8		**94.6**	86.0	118.0

Laboratory Control Sample (LCS)

Lab Sample ID: 240528A9.LCSW28A

Run in Batch: 240528A9, Run Date: 05/28/2024 13:06, Prep Date: 05/28/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**110.9**	80.0	124.0
1,2-Dichloroethane-D4		**82.1**	72.0	125.0
Toluene-D8		**93.4**	89.0	112.0

Laboratory Control Sample (LCS)

Lab Sample ID: 240528B9.LCSG28A

Run in Batch: 240528B9, Run Date: 05/28/2024 14:17, Prep Date: 05/28/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
Toluene-D8		**94.5**	86.0	118.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240528A9.LCSDW28A, Parent Sample ID: 240528A9.LCSW28A

Run in Batch: 240528A9, Run Date: 05/28/2024 13:30, Prep Date: 05/28/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**108.9**	80.0	124.0
1,2-Dichloroethane-D4		**84.7**	72.0	125.0
Toluene-D8		**92.3**	89.0	112.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240528B9.LCSDG28A, Parent Sample ID: 240528B9.LCSG28A

Run in Batch: 240528B9, Run Date: 05/28/2024 14:41, Prep Date: 05/28/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
Toluene-D8		**95.3**	86.0	118.0

Organics - Volatiles, Prep Batch ID: VS240524W1

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: K240524.BLK24A

Run in Batch: K240524, Run Date: 05/24/2024 15:25, Prep Date: 05/24/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample (LCS)

Lab Sample ID: K240524.LCS24A

Run in Batch: K240524, Run Date: 05/24/2024 13:47, Prep Date: 05/24/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: K240524.LCSD24A, Parent Sample ID: K240524.LCS24A

Run in Batch: K240524, Run Date: 05/24/2024 14:12, Prep Date: 05/24/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62468.01

Sample Tag: MW-04-06R_052224

Collected Date/Time: 05/22/2024 11:15

Matrix: Groundwater

COC Reference: 1

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240524, Run Date: 05/24/2024 15:50, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**90.9**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62468.02

Sample Tag: MW-04-01(6)_052224

Collected Date/Time: 05/22/2024 13:05

Matrix: Groundwater

COC Reference: 1

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240524, Run Date: 05/24/2024 16:14, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**91.2**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62468.05

Sample Tag: MW-04-04R_052224

Collected Date/Time: 05/22/2024 15:00

Matrix: Groundwater

COC Reference: 1

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240524, Run Date: 05/24/2024 16:39, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**84.1**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62468.06

Sample Tag: MW-21-141_052224

Collected Date/Time: 05/22/2024 16:40

Matrix: Groundwater

COC Reference: 1

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240524, Run Date: 05/24/2024 17:03, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**81.9**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62468.07

Sample Tag: MW-13-50_052324

Collected Date/Time: 05/23/2024 09:55

Matrix: Groundwater

COC Reference: 1

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240524, Run Date: 05/24/2024 17:28, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**83.8**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62468.08

Sample Tag: MW-13-52_052324

Collected Date/Time: 05/23/2024 11:20

Matrix: Groundwater

COC Reference: 1

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240524, Run Date: 05/24/2024 17:52, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**62.3**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62468.09

Sample Tag: MW-03-06_052324

Collected Date/Time: 05/23/2024 13:10

Matrix: Groundwater

COC Reference: 1

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240524, Run Date: 05/24/2024 18:17, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**71.1**	50.0	200.0

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240528A9, Run Date: 05/28/2024 15:53, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**88.7**	50.0	200.0
1,4-Difluorobenzene		**98.2**	50.0	200.0
Chlorobenzene-D5		**97.2**	50.0	200.0
1,4-Dichlorobenzene-D4		**99.7**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62468.10

Sample Tag: MW-03-05_052324

Collected Date/Time: 05/23/2024 14:20

Matrix: Groundwater

COC Reference: 1

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240524, Run Date: 05/24/2024 18:41, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**94.5**	50.0	200.0

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240524B7, Run Date: 05/25/2024 04:37, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**103.0**	50.0	200.0
1,4-Difluorobenzene		**106.2**	50.0	200.0
Chlorobenzene-D5		**93.5**	50.0	200.0
1,4-Dichlorobenzene-D4		**97.6**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62468.11

Sample Tag: MW-02-02(6)_052324

Collected Date/Time: 05/23/2024 15:40

Matrix: Groundwater

COC Reference: 1

Organics - Semi-Volatiles, Analysis: Semi-Volatile Organics - MDEQ

Run in Batch: P240530B, Run Date: 05/31/2024 01:13, Matrix: WW, Dilution: 2

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dichlorobenzene-D4		**89.3**	50.0	200.0
Naphthalene-D8		**88.4**	50.0	200.0
Acenaphthalene-D10		**89.2**	50.0	200.0
Phenanthrene-D10		**90.6**	50.0	200.0
Chrysene-D12		**88.4**	50.0	200.0
Perylene-D12		**70.1**	50.0	200.0

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240524, Run Date: 05/24/2024 19:06, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**66.7**	50.0	200.0

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240528A9, Run Date: 05/28/2024 16:17, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**94.5**	50.0	200.0
1,4-Difluorobenzene		**103.5**	50.0	200.0
Chlorobenzene-D5		**101.5**	50.0	200.0
1,4-Dichlorobenzene-D4		**101.4**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62468.12

Sample Tag: Trip Blank

Collected Date/Time: 05/23/2024 00:01

Matrix: Water

COC Reference: 1

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240524B7, Run Date: 05/25/2024 03:25, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**101.7**	50.0	200.0
1,4-Difluorobenzene		**102.1**	50.0	200.0
Chlorobenzene-D5		**92.1**	50.0	200.0
1,4-Dichlorobenzene-D4		**102.5**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62468.13

Sample Tag: Dup-11_052324

Collected Date/Time: 05/23/2024 00:01

Matrix: Groundwater

COC Reference: 1

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240524, Run Date: 05/24/2024 19:30, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**69.5**	50.0	200.0

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240524B7, Run Date: 05/25/2024 05:24, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**100.2**	50.0	200.0
1,4-Difluorobenzene		**102.5**	50.0	200.0
Chlorobenzene-D5		**91.3**	50.0	200.0
1,4-Dichlorobenzene-D4		**110.2**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62468.14

Sample Tag: Dup-13_052224

Collected Date/Time: 05/22/2024 00:01

Matrix: Groundwater

COC Reference: 1

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: K240524, Run Date: 05/24/2024 19:55, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**84.4**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62468.17

Sample Tag: MWBP-12-UST1-4_052324

Collected Date/Time: 05/23/2024 14:15

Matrix: Groundwater

COC Reference: 2

Organics - Semi-Volatiles, Analysis: Semi-Volatile Organics - MDEQ

Run in Batch: P240530B, Run Date: 05/31/2024 01:43, Matrix: WW, Dilution: 2

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dichlorobenzene-D4		**83.0**	50.0	200.0
Naphthalene-D8		**82.3**	50.0	200.0
Acenaphthalene-D10		**83.8**	50.0	200.0
Phenanthrene-D10		**82.0**	50.0	200.0
Chrysene-D12		**80.7**	50.0	200.0
Perylene-D12		**65.4**	50.0	200.0

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240524B7, Run Date: 05/25/2024 05:48, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**103.8**	50.0	200.0
1,4-Difluorobenzene		**106.4**	50.0	200.0
Chlorobenzene-D5		**93.5**	50.0	200.0
1,4-Dichlorobenzene-D4		**99.0**	50.0	200.0

Lab Sample ID: S62468.18

Sample Tag: P6-SB-07_052324

Collected Date/Time: 05/23/2024 15:55

Matrix: Groundwater

COC Reference: 2

Organics - Semi-Volatiles, Analysis: Semi-Volatile Organics - MDEQ

Run in Batch: P240530B, Run Date: 05/31/2024 02:14, Matrix: WW, Dilution: 2

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dichlorobenzene-D4		**85.0**	50.0	200.0
Naphthalene-D8		**83.5**	50.0	200.0
Acenaphthalene-D10		**85.2**	50.0	200.0
Phenanthrene-D10		**85.6**	50.0	200.0
Chrysene-D12		**81.7**	50.0	200.0
Perylene-D12		**64.6**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62468.24

Sample Tag: MW-04-05(6)_052324

Collected Date/Time: 05/23/2024 13:05

Matrix: Groundwater

COC Reference: 167352

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240524B7, Run Date: 05/25/2024 06:11, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**100.7**	50.0	200.0
1,4-Difluorobenzene		**104.3**	50.0	200.0
Chlorobenzene-D5		**93.3**	50.0	200.0
1,4-Dichlorobenzene-D4		**99.5**	50.0	200.0

Organics - Semi-Volatiles, Prep Batch ID: SF240529W1

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: H240529.BLKW29A

Run in Batch: H240529, Run Date: 05/29/2024 15:29, Prep Date: 05/29/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Acenaphthalene-D10		**104.8**	50.0	200.0

Blank (BLK)

Lab Sample ID: P240530.BLKW29A

Run in Batch: P240530, Run Date: 05/30/2024 15:09, Prep Date: 05/29/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Chrysene-D12		**106.4**	50.0	200.0
Acenaphthalene-D10		**100.6**	50.0	200.0

Blank (BLK)

Lab Sample ID: U240529.BLKW29A

Run in Batch: U240529, Run Date: 05/29/2024 14:40, Prep Date: 05/29/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dichlorobenzene-D4		**126.8**	50.0	200.0
Naphthalene-D8		**128.2**	50.0	200.0
Acenaphthalene-D10		**123.8**	50.0	200.0
Phenanthrene-D10		**113.8**	50.0	200.0
Chrysene-D12		**106.3**	50.0	200.0
Perylene-D12		**102.8**	50.0	200.0

Blank (BLK)

Lab Sample ID: U240530B.BLKW29A

Run in Batch: U240530B, Run Date: 05/30/2024 21:37, Prep Date: 05/29/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Chrysene-D12		**121.0**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: H240529.LCSW29A

Run in Batch: H240529, Run Date: 05/29/2024 15:50, Prep Date: 05/29/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Acenaphthalene-D10		**100.4**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: U240529.LCSW29A

Run in Batch: U240529, Run Date: 05/29/2024 16:50, Prep Date: 05/29/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dichlorobenzene-D4		**104.8**	50.0	200.0
Naphthalene-D8		**104.2**	50.0	200.0
Acenaphthalene-D10		**101.9**	50.0	200.0
Phenanthrene-D10		**97.3**	50.0	200.0
Chrysene-D12		**94.9**	50.0	200.0
Perylene-D12		**96.1**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: H240529.LCSDW29A, Parent Sample ID: H240529.LCSW29A

Run in Batch: H240529, Run Date: 05/29/2024 16:07, Prep Date: 05/29/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Acenaphthalene-D10		**100.0**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: U240529.LCSDW29A, Parent Sample ID: U240529.LCSW29A

Run in Batch: U240529, Run Date: 05/29/2024 17:21, Prep Date: 05/29/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dichlorobenzene-D4		**107.3**	50.0	200.0
Naphthalene-D8		**108.1**	50.0	200.0
Acenaphthalene-D10		**104.5**	50.0	200.0
Phenanthrene-D10		**99.9**	50.0	200.0
Chrysene-D12		**96.9**	50.0	200.0
Perylene-D12		**99.1**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VF240524W4

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240524B7.BLKW24B

Run in Batch: 240524B7, Run Date: 05/25/2024 03:01, Prep Date: 05/24/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**101.9**	50.0	200.0
1,4-Difluorobenzene		**102.3**	50.0	200.0
Chlorobenzene-D5		**88.5**	50.0	200.0
1,4-Dichlorobenzene-D4		**93.0**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 240524B7.LCSW24B

Run in Batch: 240524B7, Run Date: 05/25/2024 01:27, Prep Date: 05/24/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**97.6**	50.0	200.0
1,4-Difluorobenzene		**98.4**	50.0	200.0
Chlorobenzene-D5		**87.4**	50.0	200.0
1,4-Dichlorobenzene-D4		**90.9**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240524B7.LCSDW24B, Parent Sample ID: 240524B7.LCSW24B

Run in Batch: 240524B7, Run Date: 05/25/2024 01:50, Prep Date: 05/24/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**100.1**	50.0	200.0
1,4-Difluorobenzene		**99.9**	50.0	200.0
Chlorobenzene-D5		**90.4**	50.0	200.0
1,4-Dichlorobenzene-D4		**97.3**	50.0	200.0

QC Report - Internal Standards per QC Sample

Organics - Volatiles, Prep Batch ID: VF240528W1

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240528A9.BLKS28A

Run in Batch: 240528A9, Run Date: 05/28/2024 15:05, Prep Date: 05/28/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**96.0**	50.0	200.0
1,4-Difluorobenzene		**102.6**	50.0	200.0
Chlorobenzene-D5		**99.4**	50.0	200.0
1,4-Dichlorobenzene-D4		**99.8**	50.0	200.0

Blank (BLK)

Lab Sample ID: 240528B9.BLKS28A

Run in Batch: 240528B9, Run Date: 05/28/2024 15:05, Prep Date: 05/28/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL

No Internal Standards

Laboratory Control Sample (LCS)

Lab Sample ID: 240528A9.LCSW28A

Run in Batch: 240528A9, Run Date: 05/28/2024 13:06, Prep Date: 05/28/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**102.5**	50.0	200.0
1,4-Difluorobenzene		**103.2**	50.0	200.0
Chlorobenzene-D5		**103.6**	50.0	200.0
1,4-Dichlorobenzene-D4		**104.0**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 240528B9.LCSG28A

Run in Batch: 240528B9, Run Date: 05/28/2024 14:17, Prep Date: 05/28/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL

No Internal Standards

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240528A9.LCSDW28A, Parent Sample ID: 240528A9.LCSW28A

Run in Batch: 240528A9, Run Date: 05/28/2024 13:30, Prep Date: 05/28/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**104.4**	50.0	200.0
1,4-Difluorobenzene		**105.2**	50.0	200.0
Chlorobenzene-D5		**103.2**	50.0	200.0
1,4-Dichlorobenzene-D4		**100.4**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240528B9.LCSDG28A, Parent Sample ID: 240528B9.LCSG28A

Run in Batch: 240528B9, Run Date: 05/28/2024 14:41, Prep Date: 05/28/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL

No Internal Standards

Organics - Volatiles, Prep Batch ID: VS240524W1

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: K240524.BLK24A

Run in Batch: K240524, Run Date: 05/24/2024 15:25, Prep Date: 05/24/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**84.0**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: K240524.LCS24A

Run in Batch: K240524, Run Date: 05/24/2024 13:47, Prep Date: 05/24/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**84.2**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: K240524.LCSD24A, Parent Sample ID: K240524.LCS24A

Run in Batch: K240524, Run Date: 05/24/2024 14:12, Prep Date: 05/24/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**87.6**	50.0	200.0

Metals, Prep Batch ID: MTD-052924-4

Surrogates: No, QC Types: BLK/LCS/MS/MSD

Blank (BLK)

Lab Sample ID: MT4-24-0529B.018.LRB

Run in Batch: MT4-24-0529B, Run Date: 05/29/2024 13:18, Prep Date: 05/29/2024, Matrix: Liquid, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Arsenic		ND	0.0004	mg/L
Chromium		ND	0.001	mg/L
Copper		ND	0.001	mg/L
Lead		ND	0.0006	mg/L
Nickel		ND	0.001	mg/L
Vanadium		ND	0.001	mg/L

Laboratory Control Sample (LCS)

Lab Sample ID: MT4-24-0529B.017.LCS

Run in Batch: MT4-24-0529B, Run Date: 05/29/2024 13:15, Prep Date: 05/29/2024, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Arsenic		103	85	115
Chromium		104	85	115
Copper		105	85	115
Lead		99	85	115
Nickel		103	85	115
Vanadium		101	85	115

Matrix Spike (MS)

Lab Sample ID: MT4-24-0529B.044.MS, Parent Sample ID: S62361.21

Run in Batch: MT4-24-0529B, Run Date: 05/29/2024 13:55, Prep Date: 05/29/2024, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL
Arsenic		102	75	125
Chromium	*	148	75	125
Copper		96	75	125
Lead		93	75	125
Nickel		97	75	125
Vanadium		102	75	125

Matrix Spike (MS)

Lab Sample ID: MT4-24-0529B.068.MS, Parent Sample ID: S62468.20

Run in Batch: MT4-24-0529B, Run Date: 05/29/2024 14:29, Prep Date: 05/29/2024, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL
Arsenic		102	75	125
Chromium		99	75	125
Copper		94	75	125
Lead		93	75	125
Nickel		97	75	125
Vanadium		101	75	125

Matrix Spike Duplicate (MSD)

Lab Sample ID: MT4-24-0529B.045.MSD, Parent Sample ID: MT4-24-0529B.044.MS

Run in Batch: MT4-24-0529B, Run Date: 05/29/2024 13:56, Prep Date: 05/29/2024, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Arsenic		103	75	125	1	20
Chromium	*	140	75	125	0	20

Metals, Prep Batch ID: MTD-052924-4 (continued)

Surrogates: No, QC Types: BLK/LCS/MS/MSD

Matrix Spike Duplicate (MSD) (continued)

Lab Sample ID: MT4-24-0529B.045.MSD, Parent Sample ID: MT4-24-0529B.044.MS

Run in Batch: MT4-24-0529B, Run Date: 05/29/2024 13:56, Prep Date: 05/29/2024, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Copper		95	75	125	0	20
Lead		96	75	125	3	20
Nickel		98	75	125	1	20
Vanadium		102	75	125	0	20

Matrix Spike Duplicate (MSD)

Lab Sample ID: MT4-24-0529B.069.MSD, Parent Sample ID: MT4-24-0529B.068.MS

Run in Batch: MT4-24-0529B, Run Date: 05/29/2024 14:30, Prep Date: 05/29/2024, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Arsenic		108	75	125	5	20
Chromium		101	75	125	2	20
Copper		96	75	125	2	20
Lead		93	75	125	0	20
Nickel		100	75	125	3	20
Vanadium		103	75	125	2	20

Organics - Semi-Volatiles, Prep Batch ID: SF240529W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: P240530.BLKW29A

Run in Batch: P240530, Run Date: 05/30/2024 15:09, Prep Date: 05/29/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Benzo(a)pyrene		ND	0.01	ug/l
Hexachlorobenzene		ND	0.01	ug/l
Hexachlorobutadiene		ND	0.01	ug/l
Hexachlorocyclopentadiene		ND	0.01	ug/l

Blank (BLK)

Lab Sample ID: U240529.BLKW29A

Run in Batch: U240529, Run Date: 05/29/2024 14:40, Prep Date: 05/29/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Acenaphthene		ND	0.50	ug/l
Acenaphthylene		ND	0.50	ug/l
Anthracene		ND	0.50	ug/l
Benzo(a)anthracene		ND	0.50	ug/l
Benzo(b)fluoranthene		ND	0.50	ug/l
Benzo(k)fluoranthene		ND	0.50	ug/l
Benzo(ghi)perylene		ND	0.50	ug/l
Benzo(a)pyrene		ND	0.50	ug/l
bis(2-Chloroethoxy)methane		ND	0.50	ug/l
bis(2-Chloroethyl)ether		ND	0.50	ug/l
bis(2-Chloroisopropyl)ether		ND	0.50	ug/l
bis(2-Ethylhexyl)phthalate		ND	0.50	ug/l
4-Bromophenyl phenyl ether		ND	0.50	ug/l
Butyl benzyl phthalate		ND	0.50	ug/l
4-Chloroaniline		ND	0.50	ug/l
2-Chloronaphthalene		ND	0.50	ug/l
4-Chloro-3-methylphenol		ND	0.50	ug/l
2-Chlorophenol		ND	0.50	ug/l
4-Chlorophenyl phenyl ether		ND	0.50	ug/l
Chrysene		ND	0.50	ug/l
3-, 4-Methylphenol (p,m-Cresol)		ND	0.50	ug/l
2-Methylphenol (o-Cresol)		ND	0.50	ug/l
Dibenzo(ah)anthracene		ND	0.50	ug/l
Dibenzofuran		ND	0.50	ug/l
di-n-Butyl phthalate		ND	0.50	ug/l
1,2-Dichlorobenzene		ND	0.50	ug/l
1,3-Dichlorobenzene		ND	0.50	ug/l
1,4-Dichlorobenzene		ND	0.50	ug/l
3,3'-Dichlorobenzidine		ND	0.50	ug/l
2,4-Dichlorophenol		ND	0.50	ug/l
Diethyl phthalate		ND	0.50	ug/l
2,4-Dimethylphenol		ND	0.50	ug/l
Dimethyl phthalate		ND	0.50	ug/l
4,6-Dinitro-2-methylphenol		ND	0.50	ug/l
2,4-Dinitrophenol		ND	0.50	ug/l
2,4-Dinitrotoluene		ND	0.50	ug/l
2,6-Dinitrotoluene		ND	0.50	ug/l

Organics - Semi-Volatiles, Prep Batch ID: SF240529W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK) (continued)

Lab Sample ID: U240529.BLKW29A

Run in Batch: U240529, Run Date: 05/29/2024 14:40, Prep Date: 05/29/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
1,2-Diphenylhydrazine		ND	0.50	ug/l
di-n-Octyl phthalate		ND	0.50	ug/l
Fluoranthene		ND	0.50	ug/l
Fluorene		ND	0.50	ug/l
Hexachlorobenzene		ND	0.50	ug/l
Hexachlorobutadiene		ND	0.50	ug/l
Hexachlorocyclopentadiene		ND	0.50	ug/l
Hexachloroethane		ND	0.50	ug/l
Indeno(1,2,3-cd)pyrene		ND	0.50	ug/l
Isophorone		ND	0.50	ug/l
2-Methylnaphthalene		ND	0.50	ug/l
Naphthalene		ND	0.50	ug/l
2-Nitroaniline		ND	0.50	ug/l
3-Nitroaniline		ND	0.50	ug/l
4-Nitroaniline		ND	0.50	ug/l
Nitrobenzene		ND	0.50	ug/l
2-Nitrophenol		ND	0.50	ug/l
4-Nitrophenol		ND	0.50	ug/l
N-Nitrosodiphenylamine		ND	0.50	ug/l
N-Nitrosodi-n-propylamine		ND	0.50	ug/l
Pentachlorophenol		ND	0.50	ug/l
Phenanthrene		ND	0.50	ug/l
Phenol		ND	0.50	ug/l
Pyrene		ND	0.50	ug/l
1,2,4-Trichlorobenzene		ND	0.50	ug/l
2,4,5-Trichlorophenol		ND	0.50	ug/l
2,4,6-Trichlorophenol		ND	0.50	ug/l

Blank (BLK)

Lab Sample ID: U240530B.BLKW29A

Run in Batch: U240530B, Run Date: 05/30/2024 21:37, Prep Date: 05/29/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Benzo(a)anthracene		ND	0.01	ug/l
Benzo(b)fluoranthene		ND	0.01	ug/l
Benzo(a)pyrene		ND	0.01	ug/l
Dibenzo(ah)anthracene		ND	0.01	ug/l
Indeno(1,2,3-cd)pyrene		ND	0.01	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: U240529.LCSW29A

Run in Batch: U240529, Run Date: 05/29/2024 16:50, Prep Date: 05/29/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Acenaphthene		56.9	27	111
Acenaphthylene		55.5	16	116
Anthracene		63.0	31	119
Benzo(a)anthracene		62.7	35	119

Organics - Semi-Volatiles, Prep Batch ID: SF240529W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: U240529.LCSW29A

Run in Batch: U240529, Run Date: 05/29/2024 16:50, Prep Date: 05/29/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Benzo(b)fluoranthene		61.5	27	129
Benzo(k)fluoranthene		60.2	36	120
Benzo(ghi)perylene		71.3	31	126
Benzo(a)pyrene		61.5	32	121
bis(2-Chloroethoxy)methane		55.5	23	106
bis(2-Chloroethyl)ether		49.7	29	94
bis(2-Chloroisopropyl)ether		47.5	23	91
bis(2-Ethylhexyl)phthalate		60.5	35	121
4-Bromophenyl phenyl ether		64.2	27	122
Butyl benzyl phthalate		59.4	36	117
4-Chloroaniline		40.7	19	91
2-Chloronaphthalene		55.3	21	109
4-Chloro-3-methylphenol		53.1	36	105
2-Chlorophenol		43.1	24	94
4-Chlorophenyl phenyl ether		61.2	31	114
Chrysene		62.4	34	119
3-, 4-Methylphenol (p,m-Cresol)		35.8	21	90
2-Methylphenol (o-Cresol)		37.2	23	79
Dibenzo(ah)anthracene		70.2	32	119
Dibenzofuran		59.7	29	115
di-n-Butyl phthalate		60.7	34	121
1,2-Dichlorobenzene		40.3	11	88
1,3-Dichlorobenzene		38.7	10	85
1,4-Dichlorobenzene		39.4	10	85
3,3'-Dichlorobenzidine		60.1	27	110
2,4-Dichlorophenol		56.4	33	106
Diethyl phthalate		59.5	36	116
2,4-Dimethylphenol		45.3	30	105
Dimethyl phthalate		59.9	35	116
4,6-Dinitro-2-methylphenol		59.1	19	116
2,4-Dinitrophenol		50.6	10	125
2,4-Dinitrotoluene		57.9	33	119
2,6-Dinitrotoluene		60.8	34	117
1,2-Diphenylhydrazine		62.3	34	113
di-n-Octyl phthalate		57.6	30	133
Fluoranthene		63.1	35	121
Fluorene		60.1	32	114
Hexachlorobenzene		62.0	26	126
Hexachlorobutadiene		44.1	10	95
Hexachlorocyclopentadiene		38.3	10	90
Hexachloroethane		37.5	10	82
Indeno(1,2,3-cd)pyrene		69.6	31	124
Isophorone		55.1	26	104
2-Methylnaphthalene		51.3	21	103
Naphthalene		47.8	21	99
2-Nitroaniline		57.3	34	111

Organics - Semi-Volatiles, Prep Batch ID: SF240529W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: U240529.LCSW29A

Run in Batch: U240529, Run Date: 05/29/2024 16:50, Prep Date: 05/29/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
3-Nitroaniline		45.0	34	111
4-Nitroaniline		53.1	34	100
Nitrobenzene		51.7	30	98
2-Nitrophenol		58.2	31	108
4-Nitrophenol		28.8	10	90
N-Nitrosodiphenylamine		63.5	31	120
N-Nitrosodi-n-propylamine		52.0	33	102
Pentachlorophenol		56.0	10	108
Phenanthrene		61.4	35	113
Phenol		19.8	10	43
Pyrene		62.0	33	120
1,2,4-Trichlorobenzene		46.5	10	98
2,4,5-Trichlorophenol		63.3	31	120
2,4,6-Trichlorophenol		63.5	31	114

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: U240529.LCSDW29A, Parent Sample ID: U240529.LCSW29A

Run in Batch: U240529, Run Date: 05/29/2024 17:21, Prep Date: 05/29/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Acenaphthene		59.3	27	111	4.1	30.0
Acenaphthylene		57.8	16	116	4.0	30.0
Anthracene		64.5	31	119	2.3	30.0
Benzo(a)anthracene		65.1	35	119	3.8	30.0
Benzo(b)fluoranthene		62.6	27	129	1.8	30.0
Benzo(k)fluoranthene		63.5	36	120	5.4	30.0
Benzo(ghi)perylene		73.6	31	126	3.1	30.0
Benzo(a)pyrene		63.8	32	121	3.7	30.0
bis(2-Chloroethoxy)methane		57.7	23	106	3.8	30.0
bis(2-Chloroethyl)ether		51.3	29	94	3.2	30.0
bis(2-Chloroisopropyl)ether		49.5	23	91	4.1	30.0
bis(2-Ethylhexyl)phthalate		62.6	35	121	3.3	30.0
4-Bromophenyl phenyl ether		65.8	27	122	2.5	30.0
Butyl benzyl phthalate		60.9	36	117	2.6	30.0
4-Chloroaniline		43.8	19	91	7.2	30.0
2-Chloronaphthalene		58.4	21	109	5.4	30.0
4-Chloro-3-methylphenol		55.1	36	105	3.8	30.0
2-Chlorophenol		45.3	24	94	5.0	30.0
4-Chlorophenyl phenyl ether		63.5	31	114	3.7	30.0
Chrysene		64.9	34	119	4.0	30.0
3-, 4-Methylphenol (p,m-Cresol)		38.4	21	90	7.0	30.0
2-Methylphenol (o-Cresol)		39.7	23	79	6.7	30.0
Dibenzo(ah)anthracene		72.5	32	119	3.2	30.0
Dibenzofuran		62.1	29	115	4.0	30.0
di-n-Butyl phthalate		62.1	34	121	2.3	30.0
1,2-Dichlorobenzene		41.8	11	88	3.7	30.0
1,3-Dichlorobenzene		39.5	10	85	2.1	30.0

Organics - Semi-Volatiles, Prep Batch ID: SF240529W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: U240529.LCSDW29A, Parent Sample ID: U240529.LCSW29A

Run in Batch: U240529, Run Date: 05/29/2024 17:21, Prep Date: 05/29/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dichlorobenzene		40.2	10	85	2.1	30.0
3,3'-Dichlorobenzidine		63.7	27	110	5.9	30.0
2,4-Dichlorophenol		58.7	33	106	4.1	30.0
Diethyl phthalate		61.7	36	116	3.6	30.0
2,4-Dimethylphenol		47.2	30	105	4.1	30.0
Dimethyl phthalate		62.2	35	116	3.8	30.0
4,6-Dinitro-2-methylphenol		63.3	19	116	6.7	30.0
2,4-Dinitrophenol		63.8	10	125	23.1	30.0
2,4-Dinitrotoluene		59.7	33	119	3.1	30.0
2,6-Dinitrotoluene		63.5	34	117	4.3	30.0
1,2-Diphenylhydrazine		64.3	34	113	3.3	30.0
di-n-Octyl phthalate		58.7	30	133	2.0	30.0
Fluoranthene		65.3	35	121	3.4	30.0
Fluorene		62.1	32	114	3.2	30.0
Hexachlorobenzene		63.9	26	126	3.0	30.0
Hexachlorobutadiene		46.4	10	95	5.1	30.0
Hexachlorocyclopentadiene		42.8	10	90	11.2	30.0
Hexachloroethane		38.3	10	82	2.2	30.0
Indeno(1,2,3-cd)pyrene		72.4	31	124	3.9	30.0
Isophorone		56.9	26	104	3.2	30.0
2-Methylnaphthalene		53.9	21	103	5.0	30.0
Naphthalene		49.6	21	99	3.8	30.0
2-Nitroaniline		60.4	34	111	5.1	30.0
3-Nitroaniline		48.1	34	111	6.7	30.0
4-Nitroaniline		56.8	34	100	6.7	30.0
Nitrobenzene		53.8	30	98	4.1	30.0
2-Nitrophenol		60.7	31	108	4.1	30.0
4-Nitrophenol		30.6	10	90	6.0	30.0
N-Nitrosodiphenylamine		64.8	31	120	2.1	30.0
N-Nitrosodi-n-propylamine		54.1	33	102	4.0	30.0
Pentachlorophenol		58.2	10	108	3.9	30.0
Phenanthrene		63.1	35	113	2.8	30.0
Phenol		21.1	10	43	6.2	30.0
Pyrene		64.1	33	120	3.4	30.0
1,2,4-Trichlorobenzene		48.6	10	98	4.3	30.0
2,4,5-Trichlorophenol		66.8	31	120	5.5	30.0
2,4,6-Trichlorophenol		65.9	31	114	3.8	30.0

Organics - Volatiles, Prep Batch ID: VF240524W4

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240524B7.BLKW24B

Run in Batch: 240524B7, Run Date: 05/25/2024 03:01, Prep Date: 05/24/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Diethyl ether		ND	1.00	ug/l
Acetone		ND	10.00	ug/l
Methyl iodide		ND	1.00	ug/l
Carbon disulfide		ND	1.00	ug/l
tert-Methyl butyl ether (MTBE)		ND	1.00	ug/l
Acrylonitrile		ND	1.00	ug/l
2-Butanone (MEK)		ND	10.00	ug/l
Dichlorodifluoromethane		ND	1.00	ug/l
Chloromethane		ND	1.00	ug/l
Vinyl chloride		ND	1.00	ug/l
Bromomethane		ND	1.00	ug/l
Chloroethane		ND	1.00	ug/l
Trichlorofluoromethane		ND	1.00	ug/l
1,1-Dichloroethene		ND	1.00	ug/l
Methylene chloride		ND	1.00	ug/l
trans-1,2-Dichloroethene		ND	1.00	ug/l
1,1-Dichloroethane		ND	1.00	ug/l
cis-1,2-Dichloroethene		ND	1.00	ug/l
Tetrahydrofuran		ND	10.00	ug/l
Chloroform		ND	1.00	ug/l
Bromochloromethane		ND	1.00	ug/l
1,1,1-Trichloroethane		ND	1.00	ug/l
4-Methyl-2-pentanone (MIBK)		ND	10.00	ug/l
2-Hexanone		ND	10.00	ug/l
Carbon tetrachloride		ND	1.00	ug/l
Benzene		ND	1.00	ug/l
1,2-Dichloroethane		ND	1.00	ug/l
Trichloroethene		ND	1.00	ug/l
1,2-Dichloropropane		ND	1.00	ug/l
Bromodichloromethane		ND	1.00	ug/l
Dibromomethane		ND	1.00	ug/l
cis-1,3-Dichloropropene		ND	1.00	ug/l
Toluene		ND	1.00	ug/l
trans-1,3-Dichloropropene		ND	1.00	ug/l
1,1,2-Trichloroethane		ND	1.00	ug/l
Tetrachloroethene		ND	1.00	ug/l
trans-1,4-Dichloro-2-butene		ND	1.00	ug/l
Dibromochloromethane		ND	1.00	ug/l
1,2-Dibromoethane		ND	1.00	ug/l
Chlorobenzene		ND	1.00	ug/l
1,1,1,2-Tetrachloroethane		ND	1.00	ug/l
Ethylbenzene		ND	1.00	ug/l
p,m-Xylene		ND	2.00	ug/l
o-Xylene		ND	1.00	ug/l
Styrene		ND	1.00	ug/l
Isopropylbenzene		ND	1.00	ug/l

Organics - Volatiles, Prep Batch ID: VF240524W4 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK) (continued)

Lab Sample ID: 240524B7.BLKW24B

Run in Batch: 240524B7, Run Date: 05/25/2024 03:01, Prep Date: 05/24/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Bromoform		ND	1.00	ug/l
1,1,2,2-Tetrachloroethane		ND	1.00	ug/l
1,2,3-Trichloropropane		ND	1.00	ug/l
n-Propylbenzene		ND	1.00	ug/l
Bromobenzene		ND	1.00	ug/l
1,3,5-Trimethylbenzene		ND	1.00	ug/l
tert-Butylbenzene		ND	1.00	ug/l
1,2,4-Trimethylbenzene		ND	1.00	ug/l
sec-Butylbenzene		ND	1.00	ug/l
p-Isopropyltoluene		ND	1.00	ug/l
1,3-Dichlorobenzene		ND	1.00	ug/l
1,4-Dichlorobenzene		ND	1.00	ug/l
1,2-Dichlorobenzene		ND	1.00	ug/l
1,2,3-Trimethylbenzene		ND	1.00	ug/l
n-Butylbenzene		ND	1.00	ug/l
Hexachloroethane		ND	1.00	ug/l
1,2-Dibromo-3-chloropropane		ND	1.00	ug/l
1,2,4-Trichlorobenzene		ND	1.00	ug/l
1,2,3-Trichlorobenzene		ND	1.00	ug/l
Naphthalene		ND	1.00	ug/l
2-Methylnaphthalene		ND	1.00	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 240524B7.LCSW24B

Run in Batch: 240524B7, Run Date: 05/25/2024 01:27, Prep Date: 05/24/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Diethyl ether		113.8	67.4	121.2
Acetone		105.8	29.9	161.5
Methyl iodide	*	126.1	68.8	116.4
Carbon disulfide		119.8	63.8	137.4
tert-Methyl butyl ether (MTBE)		109.9	73.2	122.4
Acrylonitrile		117.9	69.9	128.9
2-Butanone (MEK)		105.8	44.0	134.4
Dichlorodifluoromethane		101.4	10.0	222.8
Chloromethane		139.5	23.8	166.5
Vinyl chloride		125.5	43.5	149.1
Bromomethane		141.4	56.8	151.3
Chloroethane		129.5	53.4	149.4
Trichlorofluoromethane		130.3	59.7	151.8
1,1-Dichloroethene		122.3	69.6	139.4
Methylene chloride		115.0	73.3	121.1
trans-1,2-Dichloroethene		113.1	73.6	129.3
1,1-Dichloroethane		115.9	71.5	126.2
cis-1,2-Dichloroethene		114.1	76.6	122.1
Tetrahydrofuran		115.5	59.0	117.9
Chloroform		109.4	78.4	124.0

Organics - Volatiles, Prep Batch ID: VF240524W4 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 240524B7.LCSW24B

Run in Batch: 240524B7, Run Date: 05/25/2024 01:27, Prep Date: 05/24/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Bromochloromethane		116.2	78.2	120.8
1,1,1-Trichloroethane		116.8	79.4	130.9
4-Methyl-2-pentanone (MIBK)		114.3	71.6	125.2
2-Hexanone		115.8	55.4	136.9
Carbon tetrachloride		114.8	72.6	133.0
Benzene		108.5	79.9	124.9
1,2-Dichloroethane		103.9	76.0	126.3
Trichloroethene		107.1	79.7	124.2
1,2-Dichloropropane		107.9	78.6	126.4
Bromodichloromethane		113.8	80.4	128.2
Dibromomethane		111.3	76.9	122.1
cis-1,3-Dichloropropene		108.8	79.8	129.9
Toluene		108.2	79.8	124.5
trans-1,3-Dichloropropene		111.3	74.0	131.3
1,1,2-Trichloroethane		111.5	78.7	123.1
Tetrachloroethene		108.5	74.5	124.5
trans-1,4-Dichloro-2-butene		111.5	68.6	135.4
Dibromochloromethane		111.1	74.6	127.2
1,2-Dibromoethane		105.0	70.3	133.7
Chlorobenzene		104.6	79.2	122.7
1,1,1,2-Tetrachloroethane		106.6	80.3	128.2
Ethylbenzene		105.4	79.5	129.1
p,m-Xylene		106.4	79.4	132.2
o-Xylene		106.2	80.2	131.0
Styrene		110.3	69.5	126.7
Isopropylbenzene		105.2	74.4	121.5
Bromoform		111.0	69.4	128.0
1,1,2,2-Tetrachloroethane		110.5	79.8	126.3
1,2,3-Trichloropropane		108.3	78.3	138.8
n-Propylbenzene		101.0	82.0	130.7
Bromobenzene		102.9	78.7	124.6
1,3,5-Trimethylbenzene		105.5	81.3	128.9
tert-Butylbenzene		101.5	80.7	128.9
1,2,4-Trimethylbenzene		105.1	81.4	130.8
sec-Butylbenzene		98.1	77.4	129.8
p-Isopropyltoluene		104.1	79.8	137.5
1,3-Dichlorobenzene		101.7	77.0	131.3
1,4-Dichlorobenzene		102.1	20.7	137.7
1,2-Dichlorobenzene		102.7	10.0	166.2
1,2,3-Trimethylbenzene		106.4	76.3	124.2
n-Butylbenzene		99.5	80.0	133.3
Hexachloroethane		110.2	23.8	138.1
1,2-Dibromo-3-chloropropane		97.0	21.2	189.4
1,2,4-Trichlorobenzene		105.6	27.4	143.4
1,2,3-Trichlorobenzene		107.5	75.4	131.4
Naphthalene		115.2	32.9	135.8

Organics - Volatiles, Prep Batch ID: VF240524W4 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 240524B7.LCSW24B

Run in Batch: 240524B7, Run Date: 05/25/2024 01:27, Prep Date: 05/24/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
2-Methylnaphthalene		111.5	25.5	165.5

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240524B7.LCSDW24B, Parent Sample ID: 240524B7.LCSW24B

Run in Batch: 240524B7, Run Date: 05/25/2024 01:50, Prep Date: 05/24/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Diethyl ether		110.2	67.4	121.2	3.2	30.0
Acetone		101.9	29.9	161.5	3.7	30.0
Methyl iodide	*	118.5	68.8	116.4	6.2	30.0
Carbon disulfide		112.5	63.8	137.4	6.3	30.0
tert-Methyl butyl ether (MTBE)		105.8	73.2	122.4	3.8	30.0
Acrylonitrile		114.1	69.9	128.9	3.3	30.0
2-Butanone (MEK)		105.1	44.0	134.4	0.7	30.0
Dichlorodifluoromethane		94.7	10.0	222.8	6.9	30.0
Chloromethane		129.3	23.8	166.5	7.6	30.0
Vinyl chloride		117.5	43.5	149.1	6.6	30.0
Bromomethane		130.3	56.8	151.3	8.1	30.0
Chloroethane		120.6	53.4	149.4	7.1	30.0
Trichlorofluoromethane		120.0	59.7	151.8	8.2	30.0
1,1-Dichloroethene		110.4	69.6	139.4	10.2	30.0
Methylene chloride		109.0	73.3	121.1	5.4	30.0
trans-1,2-Dichloroethene		106.0	73.6	129.3	6.5	30.0
1,1-Dichloroethane		109.1	71.5	126.2	6.1	30.0
cis-1,2-Dichloroethene		108.4	76.6	122.1	5.1	30.0
Tetrahydrofuran	*	119.7	59.0	117.9	3.6	30.0
Chloroform		103.5	78.4	124.0	5.6	30.0
Bromochloromethane		110.2	78.2	120.8	5.3	30.0
1,1,1-Trichloroethane		109.0	79.4	130.9	6.9	30.0
4-Methyl-2-pentanone (MIBK)		110.0	71.6	125.2	3.8	30.0
2-Hexanone		112.7	55.4	136.9	2.7	30.0
Carbon tetrachloride		108.3	72.6	133.0	5.9	30.0
Benzene		103.3	79.9	124.9	5.0	30.0
1,2-Dichloroethane		100.1	76.0	126.3	3.7	30.0
Trichloroethene		101.7	79.7	124.2	5.1	30.0
1,2-Dichloropropane		102.5	78.6	126.4	5.2	30.0
Bromodichloromethane		108.9	80.4	128.2	4.5	30.0
Dibromomethane		108.2	76.9	122.1	2.9	30.0
cis-1,3-Dichloropropene		104.4	79.8	129.9	4.1	30.0
Toluene		102.6	79.8	124.5	5.3	30.0
trans-1,3-Dichloropropene		107.6	74.0	131.3	3.4	30.0
1,1,2-Trichloroethane		107.9	78.7	123.1	3.3	30.0
Tetrachloroethene		102.7	74.5	124.5	5.5	30.0
trans-1,4-Dichloro-2-butene		115.4	68.6	135.4	3.4	30.0
Dibromochloromethane		105.9	74.6	127.2	4.8	30.0
1,2-Dibromoethane		99.9	70.3	133.7	5.0	30.0
Chlorobenzene		100.4	79.2	122.7	4.1	30.0

Organics - Volatiles, Prep Batch ID: VF240524W4 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: 240524B7.LCSDW24B, Parent Sample ID: 240524B7.LCSW24B

Run in Batch: 240524B7, Run Date: 05/25/2024 01:50, Prep Date: 05/24/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,1,1,2-Tetrachloroethane		108.7	80.3	128.2	1.9	30.0
Ethylbenzene		108.0	79.5	129.1	2.4	30.0
p,m-Xylene		108.0	79.4	132.2	1.5	30.0
o-Xylene		109.5	80.2	131.0	3.1	30.0
Styrene		112.4	69.5	126.7	1.9	30.0
Isopropylbenzene		106.9	74.4	121.5	1.7	30.0
Bromoform		114.5	69.4	128.0	3.1	30.0
1,1,2,2-Tetrachloroethane		115.9	79.8	126.3	4.7	30.0
1,2,3-Trichloropropane		111.9	78.3	138.8	3.2	30.0
n-Propylbenzene		103.4	82.0	130.7	2.3	30.0
Bromobenzene		104.7	78.7	124.6	1.7	30.0
1,3,5-Trimethylbenzene		106.8	81.3	128.9	1.3	30.0
tert-Butylbenzene		102.8	80.7	128.9	1.3	30.0
1,2,4-Trimethylbenzene		108.1	81.4	130.8	2.8	30.0
sec-Butylbenzene		97.2	77.4	129.8	0.9	30.0
p-Isopropyltoluene		101.2	79.8	137.5	2.8	30.0
1,3-Dichlorobenzene		100.1	77.0	131.3	1.6	30.0
1,4-Dichlorobenzene		98.4	20.7	137.7	3.7	30.0
1,2-Dichlorobenzene		101.5	10.0	166.2	1.1	30.0
1,2,3-Trimethylbenzene		104.3	76.3	124.2	2.0	30.0
n-Butylbenzene		97.3	80.0	133.3	2.2	30.0
Hexachloroethane		108.5	23.8	138.1	1.6	30.0
1,2-Dibromo-3-chloropropane		99.4	21.2	189.4	2.4	30.0
1,2,4-Trichlorobenzene		104.8	27.4	143.4	0.7	30.0
1,2,3-Trichlorobenzene		109.3	75.4	131.4	1.6	30.0
Naphthalene		118.1	32.9	135.8	2.4	30.0
2-Methylnaphthalene		120.2	25.5	165.5	7.5	30.0

Organics - Volatiles, Prep Batch ID: VF240528W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240528A9.BLKS28A

Run in Batch: 240528A9, Run Date: 05/28/2024 15:05, Prep Date: 05/28/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Diethyl ether		ND	1.00	ug/l
Acetone		ND	10.00	ug/l
Methyl iodide		ND	1.00	ug/l
Carbon disulfide		ND	1.00	ug/l
tert-Methyl butyl ether (MTBE)		ND	1.00	ug/l
Acrylonitrile		ND	1.00	ug/l
2-Butanone (MEK)		ND	10.00	ug/l
Dichlorodifluoromethane		ND	1.00	ug/l
Chloromethane		ND	1.00	ug/l
Vinyl chloride		ND	1.00	ug/l
Bromomethane		ND	1.00	ug/l
Chloroethane		ND	1.00	ug/l
Trichlorofluoromethane		ND	1.00	ug/l
1,1-Dichloroethene		ND	1.00	ug/l
Methylene chloride		ND	1.00	ug/l
trans-1,2-Dichloroethene		ND	1.00	ug/l
1,1-Dichloroethane		ND	1.00	ug/l
cis-1,2-Dichloroethene		ND	1.00	ug/l
Tetrahydrofuran		ND	10.00	ug/l
Chloroform		ND	1.00	ug/l
Bromochloromethane		ND	1.00	ug/l
1,1,1-Trichloroethane		ND	1.00	ug/l
4-Methyl-2-pentanone (MIBK)		ND	10.00	ug/l
2-Hexanone		ND	10.00	ug/l
Carbon tetrachloride		ND	1.00	ug/l
Benzene		ND	1.00	ug/l
1,2-Dichloroethane		ND	1.00	ug/l
Trichloroethene		ND	1.00	ug/l
1,2-Dichloropropane		ND	1.00	ug/l
Bromodichloromethane		ND	1.00	ug/l
Dibromomethane		ND	1.00	ug/l
cis-1,3-Dichloropropene		ND	1.00	ug/l
Toluene		ND	1.00	ug/l
trans-1,3-Dichloropropene		ND	1.00	ug/l
1,1,2-Trichloroethane		ND	1.00	ug/l
Tetrachloroethene		ND	1.00	ug/l
trans-1,4-Dichloro-2-butene		ND	1.00	ug/l
Dibromochloromethane		ND	1.00	ug/l
1,2-Dibromoethane		ND	1.00	ug/l
Chlorobenzene		ND	1.00	ug/l
1,1,1,2-Tetrachloroethane		ND	1.00	ug/l
Ethylbenzene		ND	1.00	ug/l
p,m-Xylene		ND	2.00	ug/l
o-Xylene		ND	1.00	ug/l
Styrene		ND	1.00	ug/l
Isopropylbenzene		ND	1.00	ug/l

Organics - Volatiles, Prep Batch ID: VF240528W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK) (continued)

Lab Sample ID: 240528A9.BLKS28A

Run in Batch: 240528A9, Run Date: 05/28/2024 15:05, Prep Date: 05/28/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Bromoform		ND	1.00	ug/l
1,1,2,2-Tetrachloroethane		ND	1.00	ug/l
1,2,3-Trichloropropane		ND	1.00	ug/l
n-Propylbenzene		ND	1.00	ug/l
Bromobenzene		ND	1.00	ug/l
1,3,5-Trimethylbenzene		ND	1.00	ug/l
tert-Butylbenzene		ND	1.00	ug/l
1,2,4-Trimethylbenzene		ND	1.00	ug/l
sec-Butylbenzene		ND	1.00	ug/l
p-Isopropyltoluene		ND	1.00	ug/l
1,3-Dichlorobenzene		ND	1.00	ug/l
1,4-Dichlorobenzene		ND	1.00	ug/l
1,2-Dichlorobenzene		ND	1.00	ug/l
1,2,3-Trimethylbenzene		ND	1.00	ug/l
n-Butylbenzene		ND	1.00	ug/l
Hexachloroethane		ND	1.00	ug/l
1,2-Dibromo-3-chloropropane		ND	1.00	ug/l
1,2,4-Trichlorobenzene		ND	1.00	ug/l
1,2,3-Trichlorobenzene		ND	1.00	ug/l
Naphthalene		ND	1.00	ug/l
2-Methylnaphthalene		ND	1.00	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 240528A9.LCSW28A

Run in Batch: 240528A9, Run Date: 05/28/2024 13:06, Prep Date: 05/28/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Diethyl ether		104.3	67.4	121.2
Acetone		80.6	29.9	161.5
Methyl iodide	*	124.0	68.8	116.4
Carbon disulfide		108.9	63.8	137.4
tert-Methyl butyl ether (MTBE)		107.6	73.2	122.4
Acrylonitrile		93.2	69.9	128.9
2-Butanone (MEK)		94.3	44.0	134.4
Dichlorodifluoromethane		96.9	10.0	222.8
Chloromethane		98.1	23.8	166.5
Vinyl chloride		101.6	43.5	149.1
Bromomethane		106.8	56.8	151.3
Chloroethane		102.5	53.4	149.4
Trichlorofluoromethane		100.3	59.7	151.8
1,1-Dichloroethene		100.6	69.6	139.4
Methylene chloride		105.3	73.3	121.1
trans-1,2-Dichloroethene		100.4	73.6	129.3
1,1-Dichloroethane		103.4	71.5	126.2
cis-1,2-Dichloroethene		110.9	76.6	122.1
Tetrahydrofuran		83.6	59.0	117.9
Chloroform		102.9	78.4	124.0

Organics - Volatiles, Prep Batch ID: VF240528W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 240528A9.LCSW28A

Run in Batch: 240528A9, Run Date: 05/28/2024 13:06, Prep Date: 05/28/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Bromochloromethane		116.7	78.2	120.8
1,1,1-Trichloroethane		105.2	79.4	130.9
4-Methyl-2-pentanone (MIBK)		97.1	71.6	125.2
2-Hexanone		95.9	55.4	136.9
Carbon tetrachloride		114.0	72.6	133.0
Benzene		107.3	79.9	124.9
1,2-Dichloroethane		100.8	76.0	126.3
Trichloroethene		112.0	79.7	124.2
1,2-Dichloropropane		104.8	78.6	126.4
Bromodichloromethane		112.3	80.4	128.2
Dibromomethane	*	125.2	76.9	122.1
cis-1,3-Dichloropropene		115.7	79.8	129.9
Toluene		108.9	79.8	124.5
trans-1,3-Dichloropropene		115.2	74.0	131.3
1,1,2-Trichloroethane		109.9	78.7	123.1
Tetrachloroethene		121.0	74.5	124.5
trans-1,4-Dichloro-2-butene		113.9	68.6	135.4
Dibromochloromethane		127.1	74.6	127.2
1,2-Dibromoethane		117.3	70.3	133.7
Chlorobenzene		118.5	79.2	122.7
1,1,1,2-Tetrachloroethane		121.9	80.3	128.2
Ethylbenzene		115.7	79.5	129.1
p,m-Xylene		118.1	79.4	132.2
o-Xylene		114.2	80.2	131.0
Styrene		119.9	69.5	126.7
Isopropylbenzene		117.8	74.4	121.5
Bromoform	*	130.8	69.4	128.0
1,1,2,2-Tetrachloroethane		110.2	79.8	126.3
1,2,3-Trichloropropane		109.2	78.3	138.8
n-Propylbenzene		113.5	82.0	130.7
Bromobenzene		123.2	78.7	124.6
1,3,5-Trimethylbenzene		121.5	81.3	128.9
tert-Butylbenzene		111.7	80.7	128.9
1,2,4-Trimethylbenzene		121.0	81.4	130.8
sec-Butylbenzene		105.6	77.4	129.8
p-Isopropyltoluene		110.5	79.8	137.5
1,3-Dichlorobenzene		112.2	77.0	131.3
1,4-Dichlorobenzene		113.3	20.7	137.7
1,2-Dichlorobenzene		112.5	10.0	166.2
1,2,3-Trimethylbenzene		113.0	76.3	124.2
n-Butylbenzene		108.1	80.0	133.3
Hexachloroethane		129.2	23.8	138.1
1,2-Dibromo-3-chloropropane		104.9	21.2	189.4
1,2,4-Trichlorobenzene		125.4	27.4	143.4
1,2,3-Trichlorobenzene		124.9	75.4	131.4
Naphthalene		114.8	32.9	135.8

Organics - Volatiles, Prep Batch ID: VF240528W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 240528A9.LCSW28A

Run in Batch: 240528A9, Run Date: 05/28/2024 13:06, Prep Date: 05/28/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
2-Methylnaphthalene		110.7	25.5	165.5

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240528A9.LCSDW28A, Parent Sample ID: 240528A9.LCSW28A

Run in Batch: 240528A9, Run Date: 05/28/2024 13:30, Prep Date: 05/28/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Diethyl ether		98.8	67.4	121.2	5.5	30.0
Acetone		80.9	29.9	161.5	0.4	30.0
Methyl iodide		113.9	68.8	116.4	8.5	30.0
Carbon disulfide		98.0	63.8	137.4	10.6	30.0
tert-Methyl butyl ether (MTBE)		103.7	73.2	122.4	3.7	30.0
Acrylonitrile		91.3	69.9	128.9	2.0	30.0
2-Butanone (MEK)		96.5	44.0	134.4	2.3	30.0
Dichlorodifluoromethane		87.5	10.0	222.8	10.2	30.0
Chloromethane		90.2	23.8	166.5	8.4	30.0
Vinyl chloride		93.2	43.5	149.1	8.7	30.0
Bromomethane		97.1	56.8	151.3	9.5	30.0
Chloroethane		95.2	53.4	149.4	7.4	30.0
Trichlorofluoromethane		91.9	59.7	151.8	8.7	30.0
1,1-Dichloroethene		92.5	69.6	139.4	8.3	30.0
Methylene chloride		97.2	73.3	121.1	8.0	30.0
trans-1,2-Dichloroethene		92.7	73.6	129.3	8.0	30.0
1,1-Dichloroethane		95.3	71.5	126.2	8.1	30.0
cis-1,2-Dichloroethene		102.7	76.6	122.1	7.7	30.0
Tetrahydrofuran		81.2	59.0	117.9	2.9	30.0
Chloroform		95.6	78.4	124.0	7.3	30.0
Bromochloromethane		110.0	78.2	120.8	5.9	30.0
1,1,1-Trichloroethane		97.2	79.4	130.9	7.8	30.0
4-Methyl-2-pentanone (MIBK)		96.0	71.6	125.2	1.2	30.0
2-Hexanone		95.0	55.4	136.9	1.0	30.0
Carbon tetrachloride		103.5	72.6	133.0	9.6	30.0
Benzene		99.0	79.9	124.9	8.0	30.0
1,2-Dichloroethane		93.7	76.0	126.3	7.3	30.0
Trichloroethene		103.4	79.7	124.2	8.0	30.0
1,2-Dichloropropane		97.8	78.6	126.4	6.9	30.0
Bromodichloromethane		105.3	80.4	128.2	6.5	30.0
Dibromomethane		119.0	76.9	122.1	5.1	30.0
cis-1,3-Dichloropropene		107.5	79.8	129.9	7.3	30.0
Toluene		100.0	79.8	124.5	8.5	30.0
trans-1,3-Dichloropropene		107.8	74.0	131.3	6.6	30.0
1,1,2-Trichloroethane		103.9	78.7	123.1	5.6	30.0
Tetrachloroethene		111.1	74.5	124.5	8.5	30.0
trans-1,4-Dichloro-2-butene		114.1	68.6	135.4	0.2	30.0
Dibromochloromethane		122.8	74.6	127.2	3.4	30.0
1,2-Dibromoethane		113.8	70.3	133.7	3.0	30.0
Chlorobenzene		113.3	79.2	122.7	4.5	30.0

Organics - Volatiles, Prep Batch ID: VF240528W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: 240528A9.LCSDW28A, Parent Sample ID: 240528A9.LCSW28A

Run in Batch: 240528A9, Run Date: 05/28/2024 13:30, Prep Date: 05/28/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,1,1,2-Tetrachloroethane		113.4	80.3	128.2	7.2	30.0
Ethylbenzene		109.1	79.5	129.1	5.9	30.0
p,m-Xylene		111.2	79.4	132.2	6.0	30.0
o-Xylene		107.7	80.2	131.0	5.8	30.0
Styrene		113.1	69.5	126.7	5.9	30.0
Isopropylbenzene		110.8	74.4	121.5	6.2	30.0
Bromoform	*	128.4	69.4	128.0	1.9	30.0
1,1,2,2-Tetrachloroethane		109.2	79.8	126.3	1.0	30.0
1,2,3-Trichloropropane		107.1	78.3	138.8	1.9	30.0
n-Propylbenzene		107.6	82.0	130.7	5.3	30.0
Bromobenzene		115.7	78.7	124.6	6.3	30.0
1,3,5-Trimethylbenzene		114.6	81.3	128.9	5.8	30.0
tert-Butylbenzene		105.1	80.7	128.9	6.1	30.0
1,2,4-Trimethylbenzene		113.8	81.4	130.8	6.1	30.0
sec-Butylbenzene		102.8	77.4	129.8	2.7	30.0
p-Isopropyltoluene		106.1	79.8	137.5	4.1	30.0
1,3-Dichlorobenzene		108.4	77.0	131.3	3.5	30.0
1,4-Dichlorobenzene		109.3	20.7	137.7	3.6	30.0
1,2-Dichlorobenzene		110.0	10.0	166.2	2.3	30.0
1,2,3-Trimethylbenzene		109.9	76.3	124.2	2.8	30.0
n-Butylbenzene		104.3	80.0	133.3	3.5	30.0
Hexachloroethane		124.8	23.8	138.1	3.5	30.0
1,2-Dibromo-3-chloropropane		110.7	21.2	189.4	5.4	30.0
1,2,4-Trichlorobenzene		124.8	27.4	143.4	0.4	30.0
1,2,3-Trichlorobenzene		125.5	75.4	131.4	0.5	30.0
Naphthalene		117.9	32.9	135.8	2.6	30.0
2-Methylnaphthalene		115.0	25.5	165.5	3.8	30.0

Organics - Volatiles, Prep Batch ID: VS240524W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: K240524.BLK24A

Run in Batch: K240524, Run Date: 05/24/2024 15:25, Prep Date: 05/24/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
1,4-Dioxane		ND	0.02	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: K240524.LCS24A

Run in Batch: K240524, Run Date: 05/24/2024 13:47, Prep Date: 05/24/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		117.0	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: K240524.LCSD24A, Parent Sample ID: K240524.LCS24A

Run in Batch: K240524, Run Date: 05/24/2024 14:12, Prep Date: 05/24/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		110.7	70.0	130.0	5.5	30.0

Merit Laboratories Login Checklist

Lab Set ID: S62468
Client: ARCADIS_NOVI (ARCADIS U.S., Inc.)
Project: 30214036.0470A / RACER Lansing GWS
Submitted: 05/24/2024 08:00 Login User: MMC

Attention: Kaitlyn Hunt
Address: Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Selection				Description	Note
Sample Receiving					
01.	☐ Yes	☒ No	☐ N/A	Samples are received at 4C +/- 2C Thermometer #	IR 7.3
02.	☒ Yes	☐ No	☐ N/A	Received on ice/ cooling process begun	
03.	☐ Yes	☒ No	☐ N/A	Samples shipped	
04.	☒ Yes	☐ No	☐ N/A	Samples left in 24 hr. drop box	
05.	☒ Yes	☐ No	☐ N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	☒ Yes	☐ No	☐ N/A	COC adequately filled out	
07.	☒ Yes	☐ No	☐ N/A	COC signed and relinquished to the lab	
08.	☒ Yes	☐ No	☐ N/A	Sample tag on bottles match COC	
09.	☐ Yes	☒ No	☐ N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	☒ Yes	☐ No	☐ N/A	Do sample have correct chemical preservation	
11.	☐ Yes	☐ No	☒ N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	☐ Yes	☒ No	☐ N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	☒ Yes	☐ No	☐ N/A	All bottles intact	
14.	☒ Yes	☐ No	☐ N/A	Appropriate analytical bottles are used	
15.	☒ Yes	☐ No	☐ N/A	Merit bottles used	
16.	☒ Yes	☐ No	☐ N/A	Sufficient sample volume received	
17.	☐ Yes	☒ No	☐ N/A	Samples require laboratory filtration	
18.	☒ Yes	☐ No	☐ N/A	Samples submitted within holding time	
19.	☐ Yes	☒ No	☐ N/A	Do water VOC or TOX bottles contain headspace	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories Bottle Preservation Check

Lab Set ID: S62468 Submitted: 05/24/2024 08:00

Client: ARCADIS_NOVI (ARCADIS U.S., Inc.)

Project: 30214036.0470A / RACER Lansing GWS

Initial Preservation Check: 05/24/2024 09:28 MMC

Preservation Recheck (E200.8): N/A

Attention: Kaitlyn Hunt
Address: Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Sample ID	Bottle / Preservation	pH (Orig)	Add ml	pH (New)	Notes
S62468.15	125mL Plastic HNO3	<2			
S62468.15	125mL Plastic HNO3	<2			
S62468.16	125mL Plastic HNO3	<2			
S62468.16	125mL Plastic HNO3	<2			
S62468.17	125mL Plastic HNO3	<2			
S62468.17	125mL Plastic HNO3	<2			
S62468.19	125mL Plastic HNO3	<2			
S62468.20	125mL Plastic HNO3	<2			
S62468.21	125mL Plastic HNO3	<2			
S62468.21	125mL Plastic HNO3	<2			
S62468.22	125mL Plastic HNO3	<2			
S62468.23	125mL Plastic HNO3	<2			

Plant 6

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C.O.C. PAGE # 1 OF 3

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Tiffany Linder, Kaitlyn Hunt
COMPANY: Arcadis
ADDRESS: 28550 Cabot Drive, STE 500
CITY: Novi STATE: MI ZIP CODE: 48377
PHONE NO.: 947-777-5215 FAX NO.:
P.O. NO.: US3460016166
E-MAIL ADDRESS: kaitlyn.hunt@arcadis.com QUOTE NO.:

INVOICE TO

CONTACT NAME: ☒ SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: E-MAIL ADDRESS: tiffany.linder@arcadis.com

PROJECT NO./NAME: 30214036.0470A / RACER Lansing GWS
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Donnie Richmond / Donald Richmond

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☒ EDD ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐ OHIO VAP ☐ Drinking Water ☐ DoD ☐ NPDES
Project Locations: ☐ Detroit ☐ New York ☐ Other
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	1,4-Dioxane - 8260 SIMS	VOC - 8260 SIMS	SVOC-8270 SIMS	Select Total Metals	Select Diss. Metals	Hex Chromium	Special Instructions
62468.01	5/22/24	1115	MW-04-06R_052224	GW	3		3						X						Select Metals include As, Ni, Pb, V, Cr, Cu
.02/.03/.04	5/22/24	1305	MW-04-01(6)_052224	GW	3		3						X						
.05	5/22/24	1500	MW-04-04R_052224	GW	3		3						X						
.06	5/22/24	1640	MW-21-141_052224	GW	3		3						X						
.07	5/23/24	0955	MW-13-50_052324	GW	3		3						X						
.08	5/23/24	1120	MW-13-52_052324	GW	3		3						X						
.09	5/23/24	1310	MW-03-06_052324	GW	3		3						X	X					
.10	5/23/24	1420	MW-03-05_052324	GW	3		3						X	X					
.11	5/23/24	1540	MW-02-02(6)_052324	GW	5	2	3						X	X	X				
.12	5/22/24	—	Trip Blank	GW	1		1												
.13	5/23/24	—	Dup-11_052324	GW	3		3						X	X					
.14	5/22/24	—	Dup-13_052224	GW	3		3						X	X					

RELINQUISHED BY: SIGNATURE/ORGANIZATION: Arcadis (Sampler)	DATE: 5/23/24	TIME:	
RECEIVED BY: SIGNATURE/ORGANIZATION: Merit Drop Box	DATE: 5/23/24	TIME:	
RELINQUISHED BY: SIGNATURE/ORGANIZATION: Merit Drop Box	DATE: 5/24/24	TIME: 0800	
RECEIVED BY: SIGNATURE/ORGANIZATION: M Allard	DATE: 5/24/24	TIME: 0800	
RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE	TIME	
RECEIVED BY: SIGNATURE/ORGANIZATION	DATE	TIME	

SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS
SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS

NOTES: TEMP. ON ARRIVAL 7.3

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

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C.O.C. PAGE # 2 OF 3

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Tiffany Linder, Kaitlyn Hunt
COMPANY: Arcadis
ADDRESS: 28550 Cabot Drive, STE 500
CITY: Novi | STATE: MI | ZIP CODE: 48377
PHONE NO.: 947-777-5215 | FAX NO.: | P.O. NO.: US3460016166
E-MAIL ADDRESS: kaitlyn.hunt@arcadis.com | QUOTE NO.:

INVOICE TO

CONTACT NAME: ☒ SAME
COMPANY:
ADDRESS:
CITY: | STATE: | ZIP CODE:
PHONE NO.: | E-MAIL ADDRESS: tiffany.linder@arcadis.com

PROJECT NO./NAME: 30214036.0470A / RACER Lansing GWS
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Billy J. Cobern

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☒ EDD ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐ OHIO VAP ☐ Drinking Water ☐ DoD ☐ NPDES
Project Locations: ☐ Detroit ☐ New York ☐ Other
Special Instructions: Select Metals include As, Ni, Pb, V, Cr, Cu

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	1,4-Dioxane - 8260 SIMS	VOC - 8260 SIMS	SVOC-8270 SIMS	Select Total Metals	Select Diss. Metals	Hex Chromium
	~~5/23/24~~	~~1555~~	~~MW-22-152_052324~~	~~GW~~	~~3~~	~~3~~								~~X~~ aw			~~5/23/24~~	
	~~5/23/24~~	~~1605~~	~~MW-22-151_052324~~	~~GW~~	~~3~~	~~3~~								~~X~~ aw			~~5/23/24~~	
62468.15	5/23/24	1150	MWBP-10-UST5-6_052324	GW	2			2								X	X	
.16	5/23/24	1320	MWBP-11-UST1-4_052324	GW	2			2								X	X	
.17	5/23/24	1415	MWBP-12-UST1-4_052324	GW	7	2	3	2						X	X	X	X	
.18	5/23/24	1555	P6-SB-07_052324	GW	2	2									X			

RELINQUISHED BY: SIGNATURE/ORGANIZATION	Arcadis / Sampler	DATE 5/23/24	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION	Merit Drop Box	DATE 5/23/24	TIME
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

RELINQUISHED BY: SIGNATURE/ORGANIZATION	Merit Drop Box	DATE 5/24/24	TIME 0800
RECEIVED BY: SIGNATURE/ORGANIZATION	M Chilcote	DATE 5/24/24	TIME 0800
SEAL NO.	SEAL INTACT YES☐ NO☐	INITIALS	NOTES: TEMP. ON ARRIVAL 7.3
SEAL NO.	SEAL INTACT YES☐ NO☐	INITIALS	

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

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C.O.C. PAGE # 3 OF 3

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CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Tiffany Linder, Kaitlyn Hunt
COMPANY: Arcadis
ADDRESS: 28550 Cabot Drive, Suite 500
CITY: Novi STATE: MI ZIP CODE: 48377
PHONE NO.: 947-777-5215 ~~CELL NO.~~
P.O. NO.: US346001616 6
E-MAIL ADDRESS: Kaitlyn.Hunt@arcadis.com
QUOTE NO.:

INVOICE TO

CONTACT NAME: ☒ SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: E-MAIL ADDRESS:

PROJECT NO./NAME: 30214036.0470A / RACER Lansing GWS
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Austin Westhuis / Aus W.L

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☒ EDD ☐ OTHER

MATRIX CODE: W=WATER GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR WS=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐ OHIO VAP ☐ Drinking Water ☐ DoD ☐ NPDES
Project Locations: ☐ Detroit ☐ New York ☐ Other
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	COLLECTION DATE	COLLECTION TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	1,4-Dioxane - 8260 SIMS	VOC - 8260 SIMS	SVOC - 8270 SIMS	Select Total Metals	Select Diss. Metals	Hex Chromium
62468.19	5/23/24	1245	mw-12-13_052324	GW	1			1								X		
.20	5/23/24	1405	mw-13-36R_052324	GW	1			1								X		
.21	5/23/24	1450	mw-14-66_052324	GW	2			2								X	X	
.22	5/23/24	1515	mw-14-67_052324	GW	1			1								X		
.23	5/23/24	——	DUP-12_052324	GW				1								X		
.24	5/23/24	1305	mw-04-05(6)_052324	GW	3		3							X				

RELINQUISHED BY: SIGNATURE/ORGANIZATION	Aus W.L / Arcadis ☒ Sampler	DATE 5/23/24	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION	Merit Drop Box	DATE 5/23/24	TIME
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

RELINQUISHED BY: SIGNATURE/ORGANIZATION	Merit Drop Box	DATE 5/24/24	TIME 0860
RECEIVED BY: SIGNATURE/ORGANIZATION	M Allcott	DATE 5/24/24	TIME 0800
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	

NOTES: TEMP. ON ARRIVAL 7.3

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 1.26.22

Analytical Laboratory Report

Report ID: S62470.01(01)+QC01
Generated on 05/29/2024

Report to

Attention: Kaitlyn Hunt
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 C:947-777-5215 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Addtional Contacts: Marina Samp, Tiffany Linder

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S62470.01-S62470.05
Project: 30214036.00102 / RACER Lansing GWS
Collected Date(s): 05/23/2024
Submitted Date/Time: 05/24/2024 08:00
Sampled by: Unknown
P.O. #: PO

Table of Contents

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Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Starred (*) analytes are not NY NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.
Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.
All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.
For a specific list of accredited analytes, please feel free to contact the laboratory or visit https://www.meritlabs.com/certifications.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
o	Associated EIS outside of control limits
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
q	Qualifier ion ratio outside of control limits
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
N/A	Not Applicable
SW5030C/8260C	SW 846 Method 8260C Revision 3 August 2006 / 5030C Revision 3 May 2003

Sample Summary (5 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S62470.01	MW-22-152_052324	Groundwater	05/23/24 15:00
S62470.02	MW-22-152_052324 MS	Groundwater	05/23/24 15:00
S62470.03	MW-22-152_052324 MSD	Groundwater	05/23/24 15:00
S62470.04	MW-22-154_052324	Groundwater	05/23/24 16:05
S62470.05	Trip Blank	Water	05/23/24 00:01

Lab Sample ID: S62470.01
Sample Tag: MW-22-152_052324
Collected Date/Time: 05/23/2024 15:00
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	7.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/28/24 12:30	BDO	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/25/24 07:49, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	

Lab Sample ID: S62470.01 (continued)
Sample Tag: MW-22-152_052324

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/25/24 07:49, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Lab Sample ID: S62470.02
Sample Tag: MW-22-152_052324 MS
Collected Date/Time: 05/23/2024 15:00
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	7.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/28/24 12:30	BDO	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/25/24 01:27, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	48	10		ug/L	1	60-29-7	1
Acetone	Not detected	50		ug/L	1	67-64-1	1
Methyl iodide	55	1		ug/L	1	74-88-4	1
Carbon disulfide	49	5		ug/L	1	75-15-0	1
tert-Methyl butyl ether (MTBE)	48	5		ug/L	1	1634-04-4	1
Acrylonitrile	43	2		ug/L	1	107-13-1	1
2-Butanone (MEK)	44	25		ug/L	1	78-93-3	1
Dichlorodifluoromethane	44	5		ug/L	1	75-71-8	1
Chloromethane	44	5		ug/L	1	74-87-3	1
Vinyl chloride	46	1		ug/L	1	75-01-4	1
Bromomethane	46	5		ug/L	1	74-83-9	1
Chloroethane	46	5		ug/L	1	75-00-3	1
Trichlorofluoromethane	46	1		ug/L	1	75-69-4	1
1,1-Dichloroethene	46	1		ug/L	1	75-35-4	1
Methylene chloride	47	5		ug/L	1	75-09-2	1
trans-1,2-Dichloroethene	46	1		ug/L	1	156-60-5	1
1,1-Dichloroethane	46	1		ug/L	1	75-34-3	1
cis-1,2-Dichloroethene	49	1		ug/L	1	156-59-2	1
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	1
Chloroform	46	1		ug/L	1	67-66-3	1
Bromochloromethane	53	1		ug/L	1	74-97-5	1
1,1,1-Trichloroethane	48	1		ug/L	1	71-55-6	1
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	1
2-Hexanone	Not detected	50		ug/L	1	591-78-6	1
Carbon tetrachloride	52	1		ug/L	1	56-23-5	1
Benzene	48	1		ug/L	1	71-43-2	1
1,2-Dichloroethane	45	1		ug/L	1	107-06-2	1
Trichloroethene	50	1		ug/L	1	79-01-6	1
1,2-Dichloropropane	47	1		ug/L	1	78-87-5	1
Bromodichloromethane	51	1		ug/L	1	75-27-4	1
Dibromomethane	55	5		ug/L	1	74-95-3	1
cis-1,3-Dichloropropene	49	1		ug/L	1	10061-01-5	1
Toluene	48	1		ug/L	1	108-88-3	1
trans-1,3-Dichloropropene	49	1		ug/L	1	10061-02-6	1
1,1,2-Trichloroethane	50	1		ug/L	1	79-00-5	1
Tetrachloroethene	53	1		ug/L	1	127-18-4	1

1-Spiked at 50 ug/L

Lab Sample ID: S62470.02 (continued)
Sample Tag: MW-22-152_052324 MS

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/25/24 01:27, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
trans-1,4-Dichloro-2-butene	47	1		ug/L	1	110-57-6	1
Dibromochloromethane	56	5		ug/L	1	124-48-1	1
1,2-Dibromoethane	53	1		ug/L	1	106-93-4	1
Chlorobenzene	52	1		ug/L	1	108-90-7	1
1,1,1,2-Tetrachloroethane	53	1		ug/L	1	630-20-6	1
Ethylbenzene	51	1		ug/L	1	100-41-4	1
p,m-Xylene*	104	2		ug/L	1		1
o-Xylene	50	1		ug/L	1	95-47-6	1
Styrene	53	1		ug/L	1	100-42-5	1
Isopropylbenzene	52	5		ug/L	1	98-82-8	1
Bromoform	57	1		ug/L	1	75-25-2	1
1,1,2,2-Tetrachloroethane	51	1		ug/L	1	79-34-5	1
1,2,3-Trichloropropane	50	1		ug/L	1	96-18-4	1
n-Propylbenzene	49	1		ug/L	1	103-65-1	1
Bromobenzene	54	1		ug/L	1	108-86-1	1
1,3,5-Trimethylbenzene	52	1		ug/L	1	108-67-8	1
tert-Butylbenzene	49	1		ug/L	1	98-06-6	1
1,2,4-Trimethylbenzene	53	1		ug/L	1	95-63-6	1
sec-Butylbenzene	47	1		ug/L	1	135-98-8	1
p-Isopropyltoluene	48	5		ug/L	1	99-87-6	1
1,3-Dichlorobenzene	49	1		ug/L	1	541-73-1	1
1,4-Dichlorobenzene	51	1		ug/L	1	106-46-7	1
1,2-Dichlorobenzene	50	1		ug/L	1	95-50-1	1
1,2,3-Trimethylbenzene	50	1		ug/L	1	526-73-8	1
n-Butylbenzene	47	1		ug/L	1	104-51-8	1
Hexachloroethane	55	5		ug/L	1	67-72-1	1
1,2-Dibromo-3-chloropropane	48	5		ug/L	1	96-12-8	1
1,2,4-Trichlorobenzene	53	5		ug/L	1	120-82-1	1
1,2,3-Trichlorobenzene	54	5		ug/L	1	87-61-6	1
Naphthalene	52	5		ug/L	1	91-20-3	1
2-Methylnaphthalene	48	5		ug/L	1	91-57-6	1

1-Spiked at 50 ug/L

Lab Sample ID: S62470.03
Sample Tag: MW-22-152_052324 MSD
Collected Date/Time: 05/23/2024 15:00
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	7.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/28/24 12:30	BDO	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/25/24 01:51, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	45	10		ug/L	1	60-29-7	1
Acetone	Not detected	50		ug/L	1	67-64-1	1
Methyl iodide	52	1		ug/L	1	74-88-4	1
Carbon disulfide	46	5		ug/L	1	75-15-0	1
tert-Methyl butyl ether (MTBE)	46	5		ug/L	1	1634-04-4	1
Acrylonitrile	41	2		ug/L	1	107-13-1	1
2-Butanone (MEK)	44	25		ug/L	1	78-93-3	1
Dichlorodifluoromethane	42	5		ug/L	1	75-71-8	1
Chloromethane	42	5		ug/L	1	74-87-3	1
Vinyl chloride	44	1		ug/L	1	75-01-4	1
Bromomethane	43	5		ug/L	1	74-83-9	1
Chloroethane	43	5		ug/L	1	75-00-3	1
Trichlorofluoromethane	44	1		ug/L	1	75-69-4	1
1,1-Dichloroethene	44	1		ug/L	1	75-35-4	1
Methylene chloride	44	5		ug/L	1	75-09-2	1
trans-1,2-Dichloroethene	44	1		ug/L	1	156-60-5	1
1,1-Dichloroethane	45	1		ug/L	1	75-34-3	1
cis-1,2-Dichloroethene	47	1		ug/L	1	156-59-2	1
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	1
Chloroform	44	1		ug/L	1	67-66-3	1
Bromochloromethane	50	1		ug/L	1	74-97-5	1
1,1,1-Trichloroethane	45	1		ug/L	1	71-55-6	1
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	1
2-Hexanone	Not detected	50		ug/L	1	591-78-6	1
Carbon tetrachloride	50	1		ug/L	1	56-23-5	1
Benzene	46	1		ug/L	1	71-43-2	1
1,2-Dichloroethane	44	1		ug/L	1	107-06-2	1
Trichloroethene	48	1		ug/L	1	79-01-6	1
1,2-Dichloropropane	45	1		ug/L	1	78-87-5	1
Bromodichloromethane	48	1		ug/L	1	75-27-4	1
Dibromomethane	53	5		ug/L	1	74-95-3	1
cis-1,3-Dichloropropene	47	1		ug/L	1	10061-01-5	1
Toluene	47	1		ug/L	1	108-88-3	1
trans-1,3-Dichloropropene	47	1		ug/L	1	10061-02-6	1
1,1,2-Trichloroethane	48	1		ug/L	1	79-00-5	1
Tetrachloroethene	51	1		ug/L	1	127-18-4	1

1-Spiked at 50 ug/L

Lab Sample ID: S62470.03 (continued)
Sample Tag: MW-22-152_052324 MSD

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/25/24 01:51, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
trans-1,4-Dichloro-2-butene	50	1		ug/L	1	110-57-6	1
Dibromochloromethane	55	5		ug/L	1	124-48-1	1
1,2-Dibromoethane	51	1		ug/L	1	106-93-4	1
Chlorobenzene	52	1		ug/L	1	108-90-7	1
1,1,1,2-Tetrachloroethane	52	1		ug/L	1	630-20-6	1
Ethylbenzene	51	1		ug/L	1	100-41-4	1
p,m-Xylene*	102	2		ug/L	1		1
o-Xylene	50	1		ug/L	1	95-47-6	1
Styrene	52	1		ug/L	1	100-42-5	1
Isopropylbenzene	52	5		ug/L	1	98-82-8	1
Bromoform	56	1		ug/L	1	75-25-2	1
1,1,2,2-Tetrachloroethane	50	1		ug/L	1	79-34-5	1
1,2,3-Trichloropropane	49	1		ug/L	1	96-18-4	1
n-Propylbenzene	49	1		ug/L	1	103-65-1	1
Bromobenzene	52	1		ug/L	1	108-86-1	1
1,3,5-Trimethylbenzene	52	1		ug/L	1	108-67-8	1
tert-Butylbenzene	49	1		ug/L	1	98-06-6	1
1,2,4-Trimethylbenzene	52	1		ug/L	1	95-63-6	1
sec-Butylbenzene	47	1		ug/L	1	135-98-8	1
p-Isopropyltoluene	49	5		ug/L	1	99-87-6	1
1,3-Dichlorobenzene	49	1		ug/L	1	541-73-1	1
1,4-Dichlorobenzene	50	1		ug/L	1	106-46-7	1
1,2-Dichlorobenzene	50	1		ug/L	1	95-50-1	1
1,2,3-Trimethylbenzene	50	1		ug/L	1	526-73-8	1
n-Butylbenzene	47	1		ug/L	1	104-51-8	1
Hexachloroethane	55	5		ug/L	1	67-72-1	1
1,2-Dibromo-3-chloropropane	50	5		ug/L	1	96-12-8	1
1,2,4-Trichlorobenzene	54	5		ug/L	1	120-82-1	1
1,2,3-Trichlorobenzene	54	5		ug/L	1	87-61-6	1
Naphthalene	52	5		ug/L	1	91-20-3	1
2-Methylnaphthalene	48	5		ug/L	1	91-57-6	1

1-Spiked at 50 ug/L

Lab Sample ID: S62470.04
Sample Tag: MW-22-154_052324
Collected Date/Time: 05/23/2024 16:05
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	7.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/28/24 12:30	BDO	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/25/24 08:14, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	2	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	

Lab Sample ID: S62470.04 (continued)
Sample Tag: MW-22-154_052324

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/25/24 08:14, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Lab Sample ID: S62470.05
Sample Tag: Trip Blank
Collected Date/Time: 05/23/2024 00:01
Matrix: Water
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40mL Glass	HCL	Yes	7.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	05/28/24 12:30	BDO	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/25/24 04:38, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	

Lab Sample ID: S62470.05 (continued)
Sample Tag: Trip Blank

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 05/25/24 04:38, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Quality Control Report

Report ID: S62470.01(01)+QC01
Generated on 05/29/2024

Report to

Attention: Kaitlyn Hunt
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 C:947-777-5215 FAX:

Report Produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S62470.01-S62470.05
Project: 30214036.00102 / RACER Lansing GWS
Submitted Date/Time: 05/24/2024 08:00
Sampled by: Unknown
P.O. #: PO

QC Report Sections

Cover Page (Page 16)
Analysis Summary (Pages 17-21)
Prep Batch Summary (Page 22)
Surrogates per Lab Sample (Pages 23-25)
Surrogates per QC Sample (Pages 26-27)
Internal Standards per Lab Sample (Pages 28-30)
Internal Standards per QC Sample (Pages 31-32)
Batch QC Results (Pages 33-43)

Report Flag Descriptions

*: QC result is outside of indicated control limits
W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.

Barbara Ball
Quality Assurance Manager

QC Report - Analysis Summary

Lab Sample ID: S62470.01
Sample Tag: MW-22-152_052324
Collected Date/Time: 05/23/2024 15:00
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	05/25/24 07:49	240524B9	VF240524W3	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S62470.02

Sample Tag: MW-22-152_052324 MS

Collected Date/Time: 05/23/2024 15:00

Matrix: Groundwater

COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	05/25/24 01:27	240524B9	VF240524W3	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S62470.03

Sample Tag: MW-22-152_052324 MSD

Collected Date/Time: 05/23/2024 15:00

Matrix: Groundwater

COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	05/25/24 01:51	240524B9	VF240524W3	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S62470.04
Sample Tag: MW-22-154_052324
Collected Date/Time: 05/23/2024 16:05
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	05/25/24 08:14	240524B9	VF240524W3	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S62470.05

Sample Tag: Trip Blank

Collected Date/Time: 05/23/2024 00:01

Matrix: Water

COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	05/25/24 04:38	240524B9	VF240524W3	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Prep Batch Summary

Organics - Volatiles, Prep Batch ID: VF240524W3

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S62470.01	Volatile Organics - DEQ List	SW5030C/8260C	05/25/24 07:49	240524B9
S62470.02	Volatile Organics - DEQ List	SW5030C/8260C	05/25/24 01:27	240524B9
S62470.03	Volatile Organics - DEQ List	SW5030C/8260C	05/25/24 01:51	240524B9
S62470.04	Volatile Organics - DEQ List	SW5030C/8260C	05/25/24 08:14	240524B9
S62470.05	Volatile Organics - DEQ List	SW5030C/8260C	05/25/24 04:38	240524B9

QC Report - Surrogates per Lab Sample

Lab Sample ID: S62470.01

Sample Tag: MW-22-152_052324

Collected Date/Time: 05/23/2024 15:00

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240524B9, Run Date: 05/25/2024 07:49, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**109.3**	80.0	124.0
1,2-Dichloroethane-D4		**86.3**	72.0	125.0
Toluene-D8		**92.4**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S62470.04

Sample Tag: MW-22-154_052324

Collected Date/Time: 05/23/2024 16:05

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240524B9, Run Date: 05/25/2024 08:14, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**109.7**	80.0	124.0
1,2-Dichloroethane-D4		**90.9**	72.0	125.0
Toluene-D8		**92.7**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S62470.05

Sample Tag: Trip Blank

Collected Date/Time: 05/23/2024 00:01

Matrix: Water

COC Reference:

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240524B9, Run Date: 05/25/2024 04:38, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**109.8**	80.0	124.0
1,2-Dichloroethane-D4		**91.7**	72.0	125.0
Toluene-D8		**93.7**	89.0	112.0

Organics - Volatiles, Prep Batch ID: VF240524W3

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 240524B9.BLKW24B

Run in Batch: 240524B9, Run Date: 05/25/2024 03:26, Prep Date: 05/24/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**107.7**	80.0	124.0
1,2-Dichloroethane-D4		**83.7**	72.0	125.0
Toluene-D8		**92.2**	89.0	112.0

Laboratory Control Sample (LCS)

Lab Sample ID: 240524B9.LCSW24B

Run in Batch: 240524B9, Run Date: 05/25/2024 00:39, Prep Date: 05/24/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**107.0**	80.0	124.0
1,2-Dichloroethane-D4		**86.9**	72.0	125.0
Toluene-D8		**92.6**	89.0	112.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240524B9.LCSDW24B, Parent Sample ID: 240524B9.LCSW24B

Run in Batch: 240524B9, Run Date: 05/25/2024 01:03, Prep Date: 05/24/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**108.1**	80.0	124.0
1,2-Dichloroethane-D4		**89.1**	72.0	125.0
Toluene-D8		**93.3**	89.0	112.0

Matrix Spike (MS)

Lab Sample ID: 240524B9.6244214M, Parent Sample ID: S62442.04

Run in Batch: 240524B9, Run Date: 05/25/2024 10:13, Prep Date: 05/24/2024, Matrix: WW, Dilution: 20

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**108.9**	80.0	124.0
1,2-Dichloroethane-D4		**87.3**	72.0	125.0
Toluene-D8		**92.9**	89.0	112.0

Matrix Spike (MS)

Lab Sample ID: 240524B9.6247002M, Parent Sample ID: S62470.01

Run in Batch: 240524B9, Run Date: 05/25/2024 01:27, Prep Date: 05/24/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**110.5**	80.0	124.0
1,2-Dichloroethane-D4		**88.2**	72.0	125.0
Toluene-D8		**92.3**	89.0	112.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 240524B9.6244215N, Parent Sample ID: 240524B9.6244214M

Run in Batch: 240524B9, Run Date: 05/25/2024 10:38, Prep Date: 05/24/2024, Matrix: WW, Dilution: 20

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**107.2**	80.0	124.0
1,2-Dichloroethane-D4		**86.5**	72.0	125.0
Toluene-D8		**92.3**	89.0	112.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 240524B9.6247003N, Parent Sample ID: 240524B9.6247002M

Run in Batch: 240524B9, Run Date: 05/25/2024 01:51, Prep Date: 05/24/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**107.5**	80.0	124.0
1,2-Dichloroethane-D4		**85.7**	72.0	125.0
Toluene-D8		**93.0**	89.0	112.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62470.01

Sample Tag: MW-22-152_052324

Collected Date/Time: 05/23/2024 15:00

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240524B9, Run Date: 05/25/2024 07:49, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**100.0**	50.0	200.0
1,4-Difluorobenzene		**100.9**	50.0	200.0
Chlorobenzene-D5		**98.6**	50.0	200.0
1,4-Dichlorobenzene-D4		**99.0**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62470.04

Sample Tag: MW-22-154_052324

Collected Date/Time: 05/23/2024 16:05

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240524B9, Run Date: 05/25/2024 08:14, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**98.3**	50.0	200.0
1,4-Difluorobenzene		**100.5**	50.0	200.0
Chlorobenzene-D5		**98.8**	50.0	200.0
1,4-Dichlorobenzene-D4		**99.9**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S62470.05

Sample Tag: Trip Blank

Collected Date/Time: 05/23/2024 00:01

Matrix: Water

COC Reference:

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240524B9, Run Date: 05/25/2024 04:38, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**97.6**	50.0	200.0
1,4-Difluorobenzene		**100.9**	50.0	200.0
Chlorobenzene-D5		**99.8**	50.0	200.0
1,4-Dichlorobenzene-D4		**102.0**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VF240524W3

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 240524B9.BLKW24B

Run in Batch: 240524B9, Run Date: 05/25/2024 03:26, Prep Date: 05/24/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**100.5**	50.0	200.0
1,4-Difluorobenzene		**101.8**	50.0	200.0
Chlorobenzene-D5		**97.2**	50.0	200.0
1,4-Dichlorobenzene-D4		**97.9**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 240524B9.LCSW24B

Run in Batch: 240524B9, Run Date: 05/25/2024 00:39, Prep Date: 05/24/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**102.6**	50.0	200.0
1,4-Difluorobenzene		**101.6**	50.0	200.0
Chlorobenzene-D5		**101.8**	50.0	200.0
1,4-Dichlorobenzene-D4		**101.1**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240524B9.LCSDW24B, Parent Sample ID: 240524B9.LCSW24B

Run in Batch: 240524B9, Run Date: 05/25/2024 01:03, Prep Date: 05/24/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**102.2**	50.0	200.0
1,4-Difluorobenzene		**101.2**	50.0	200.0
Chlorobenzene-D5		**103.3**	50.0	200.0
1,4-Dichlorobenzene-D4		**102.9**	50.0	200.0

Matrix Spike (MS)

Lab Sample ID: 240524B9.6244214M, Parent Sample ID: S62442.04

Run in Batch: 240524B9, Run Date: 05/25/2024 10:13, Prep Date: 05/24/2024, Matrix: WW, Dilution: 20

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**102.4**	50.0	200.0
1,4-Difluorobenzene		**103.3**	50.0	200.0
Chlorobenzene-D5		**106.3**	50.0	200.0
1,4-Dichlorobenzene-D4		**105.6**	50.0	200.0

Matrix Spike (MS)

Lab Sample ID: 240524B9.6247002M, Parent Sample ID: S62470.01

Run in Batch: 240524B9, Run Date: 05/25/2024 01:27, Prep Date: 05/24/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**102.9**	50.0	200.0
1,4-Difluorobenzene		**103.2**	50.0	200.0
Chlorobenzene-D5		**105.3**	50.0	200.0
1,4-Dichlorobenzene-D4		**106.7**	50.0	200.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 240524B9.6244215N, Parent Sample ID: 240524B9.6244214M

Run in Batch: 240524B9, Run Date: 05/25/2024 10:38, Prep Date: 05/24/2024, Matrix: WW, Dilution: 20

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**105.4**	50.0	200.0
1,4-Difluorobenzene		**104.7**	50.0	200.0
Chlorobenzene-D5		**105.5**	50.0	200.0
1,4-Dichlorobenzene-D4		**105.1**	50.0	200.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 240524B9.6247003N, Parent Sample ID: 240524B9.6247002M

Run in Batch: 240524B9, Run Date: 05/25/2024 01:51, Prep Date: 05/24/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**106.8**	50.0	200.0
1,4-Difluorobenzene		**105.3**	50.0	200.0
Chlorobenzene-D5		**105.3**	50.0	200.0
1,4-Dichlorobenzene-D4		**104.1**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VF240524W3

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 240524B9.BLKW24B

Run in Batch: 240524B9, Run Date: 05/25/2024 03:26, Prep Date: 05/24/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Diethyl ether		ND	1.00	ug/l
Acetone		ND	10.00	ug/l
Methyl iodide		ND	1.00	ug/l
Carbon disulfide		ND	1.00	ug/l
tert-Methyl butyl ether (MTBE)		ND	1.00	ug/l
Acrylonitrile		ND	1.00	ug/l
2-Butanone (MEK)		ND	10.00	ug/l
Dichlorodifluoromethane		ND	1.00	ug/l
Chloromethane		ND	1.00	ug/l
Vinyl chloride		ND	1.00	ug/l
Bromomethane		ND	1.00	ug/l
Chloroethane		ND	1.00	ug/l
Trichlorofluoromethane		ND	1.00	ug/l
1,1-Dichloroethene		ND	1.00	ug/l
Methylene chloride		ND	1.00	ug/l
trans-1,2-Dichloroethene		ND	1.00	ug/l
1,1-Dichloroethane		ND	1.00	ug/l
cis-1,2-Dichloroethene		ND	1.00	ug/l
Tetrahydrofuran		ND	10.00	ug/l
Chloroform		ND	1.00	ug/l
Bromochloromethane		ND	1.00	ug/l
1,1,1-Trichloroethane		ND	1.00	ug/l
4-Methyl-2-pentanone (MIBK)		ND	10.00	ug/l
2-Hexanone		ND	10.00	ug/l
Carbon tetrachloride		ND	1.00	ug/l
Benzene		ND	1.00	ug/l
1,2-Dichloroethane		ND	1.00	ug/l
Trichloroethene		ND	1.00	ug/l
1,2-Dichloropropane		ND	1.00	ug/l
Bromodichloromethane		ND	1.00	ug/l
Dibromomethane		ND	1.00	ug/l
cis-1,3-Dichloropropene		ND	1.00	ug/l
Toluene		ND	1.00	ug/l
trans-1,3-Dichloropropene		ND	1.00	ug/l
1,1,2-Trichloroethane		ND	1.00	ug/l
Tetrachloroethene		ND	1.00	ug/l
trans-1,4-Dichloro-2-butene		ND	1.00	ug/l
Dibromochloromethane		ND	1.00	ug/l
1,2-Dibromoethane		ND	1.00	ug/l
Chlorobenzene		ND	1.00	ug/l
1,1,1,2-Tetrachloroethane		ND	1.00	ug/l
Ethylbenzene		ND	1.00	ug/l
p,m-Xylene		ND	2.00	ug/l
o-Xylene		ND	1.00	ug/l
Styrene		ND	1.00	ug/l
Isopropylbenzene		ND	1.00	ug/l

Organics - Volatiles, Prep Batch ID: VF240524W3 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK) (continued)

Lab Sample ID: 240524B9.BLKW24B

Run in Batch: 240524B9, Run Date: 05/25/2024 03:26, Prep Date: 05/24/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Bromoform		ND	1.00	ug/l
1,1,2,2-Tetrachloroethane		ND	1.00	ug/l
1,2,3-Trichloropropane		ND	1.00	ug/l
n-Propylbenzene		ND	1.00	ug/l
Bromobenzene		ND	1.00	ug/l
1,3,5-Trimethylbenzene		ND	1.00	ug/l
tert-Butylbenzene		ND	1.00	ug/l
1,2,4-Trimethylbenzene		ND	1.00	ug/l
sec-Butylbenzene		ND	1.00	ug/l
p-Isopropyltoluene		ND	1.00	ug/l
1,3-Dichlorobenzene		ND	1.00	ug/l
1,4-Dichlorobenzene		ND	1.00	ug/l
1,2-Dichlorobenzene		ND	1.00	ug/l
1,2,3-Trimethylbenzene		ND	1.00	ug/l
n-Butylbenzene		ND	1.00	ug/l
Hexachloroethane		ND	1.00	ug/l
1,2-Dibromo-3-chloropropane		ND	1.00	ug/l
1,2,4-Trichlorobenzene		ND	1.00	ug/l
1,2,3-Trichlorobenzene		ND	1.00	ug/l
Naphthalene		ND	1.00	ug/l
2-Methylnaphthalene		ND	1.00	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 240524B9.LCSW24B

Run in Batch: 240524B9, Run Date: 05/25/2024 00:39, Prep Date: 05/24/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Diethyl ether		99.2	67.4	121.2
Acetone		83.3	29.9	161.5
Methyl iodide		115.2	68.8	116.4
Carbon disulfide		100.4	63.8	137.4
tert-Methyl butyl ether (MTBE)		98.6	73.2	122.4
Acrylonitrile		88.7	69.9	128.9
2-Butanone (MEK)		91.2	44.0	134.4
Dichlorodifluoromethane		91.0	10.0	222.8
Chloromethane		90.6	23.8	166.5
Vinyl chloride		94.7	43.5	149.1
Bromomethane		96.0	56.8	151.3
Chloroethane		94.0	53.4	149.4
Trichlorofluoromethane		94.8	59.7	151.8
1,1-Dichloroethene		95.4	69.6	139.4
Methylene chloride		98.2	73.3	121.1
trans-1,2-Dichloroethene		93.4	73.6	129.3
1,1-Dichloroethane		96.4	71.5	126.2
cis-1,2-Dichloroethene		102.5	76.6	122.1
Tetrahydrofuran		79.8	59.0	117.9
Chloroform		95.9	78.4	124.0

Organics - Volatiles, Prep Batch ID: VF240524W3 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 240524B9.LCSW24B

Run in Batch: 240524B9, Run Date: 05/25/2024 00:39, Prep Date: 05/24/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Bromochloromethane		110.1	78.2	120.8
1,1,1-Trichloroethane		97.8	79.4	130.9
4-Methyl-2-pentanone (MIBK)		93.2	71.6	125.2
2-Hexanone		91.7	55.4	136.9
Carbon tetrachloride		106.0	72.6	133.0
Benzene		99.9	79.9	124.9
1,2-Dichloroethane		94.2	76.0	126.3
Trichloroethene		103.6	79.7	124.2
1,2-Dichloropropane		97.7	78.6	126.4
Bromodichloromethane		106.4	80.4	128.2
Dibromomethane		117.0	76.9	122.1
cis-1,3-Dichloropropene		104.1	79.8	129.9
Toluene		101.1	79.8	124.5
trans-1,3-Dichloropropene		102.5	74.0	131.3
1,1,2-Trichloroethane		103.3	78.7	123.1
Tetrachloroethene		110.4	74.5	124.5
trans-1,4-Dichloro-2-butene		100.6	68.6	135.4
Dibromochloromethane		119.1	74.6	127.2
1,2-Dibromoethane		111.7	70.3	133.7
Chlorobenzene		113.2	79.2	122.7
1,1,1,2-Tetrachloroethane		111.8	80.3	128.2
Ethylbenzene		109.2	79.5	129.1
p,m-Xylene		110.8	79.4	132.2
o-Xylene		107.9	80.2	131.0
Styrene		113.5	69.5	126.7
Isopropylbenzene		110.3	74.4	121.5
Bromoform		120.6	69.4	128.0
1,1,2,2-Tetrachloroethane		107.7	79.8	126.3
1,2,3-Trichloropropane		106.4	78.3	138.8
n-Propylbenzene		106.8	82.0	130.7
Bromobenzene		114.7	78.7	124.6
1,3,5-Trimethylbenzene		114.1	81.3	128.9
tert-Butylbenzene		105.3	80.7	128.9
1,2,4-Trimethylbenzene		112.2	81.4	130.8
sec-Butylbenzene		101.5	77.4	129.8
p-Isopropyltoluene		105.7	79.8	137.5
1,3-Dichlorobenzene		108.8	77.0	131.3
1,4-Dichlorobenzene		109.7	20.7	137.7
1,2-Dichlorobenzene		109.5	10.0	166.2
1,2,3-Trimethylbenzene		110.1	76.3	124.2
n-Butylbenzene		101.5	80.0	133.3
Hexachloroethane		120.5	23.8	138.1
1,2-Dibromo-3-chloropropane		105.8	21.2	189.4
1,2,4-Trichlorobenzene		117.5	27.4	143.4
1,2,3-Trichlorobenzene		119.3	75.4	131.4
Naphthalene		112.7	32.9	135.8

Organics - Volatiles, Prep Batch ID: VF240524W3 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 240524B9.LCSW24B

Run in Batch: 240524B9, Run Date: 05/25/2024 00:39, Prep Date: 05/24/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
2-Methylnaphthalene		104.6	25.5	165.5

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240524B9.LCSDW24B, Parent Sample ID: 240524B9.LCSW24B

Run in Batch: 240524B9, Run Date: 05/25/2024 01:03, Prep Date: 05/24/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Diethyl ether		101.2	67.4	121.2	1.9	30.0
Acetone		85.5	29.9	161.5	2.6	30.0
Methyl iodide		113.3	68.8	116.4	1.6	30.0
Carbon disulfide		99.1	63.8	137.4	1.2	30.0
tert-Methyl butyl ether (MTBE)		101.2	73.2	122.4	2.6	30.0
Acrylonitrile		91.1	69.9	128.9	2.7	30.0
2-Butanone (MEK)		90.4	44.0	134.4	0.9	30.0
Dichlorodifluoromethane		88.9	10.0	222.8	2.3	30.0
Chloromethane		90.1	23.8	166.5	0.5	30.0
Vinyl chloride		93.5	43.5	149.1	1.3	30.0
Bromomethane		96.2	56.8	151.3	0.2	30.0
Chloroethane		92.7	53.4	149.4	1.4	30.0
Trichlorofluoromethane		91.5	59.7	151.8	3.5	30.0
1,1-Dichloroethene		93.6	69.6	139.4	1.9	30.0
Methylene chloride		97.8	73.3	121.1	0.4	30.0
trans-1,2-Dichloroethene		93.4	73.6	129.3	0.0	30.0
1,1-Dichloroethane		94.9	71.5	126.2	1.6	30.0
cis-1,2-Dichloroethene		101.3	76.6	122.1	1.2	30.0
Tetrahydrofuran		83.8	59.0	117.9	4.9	30.0
Chloroform		95.0	78.4	124.0	0.9	30.0
Bromochloromethane		109.7	78.2	120.8	0.3	30.0
1,1,1-Trichloroethane		96.4	79.4	130.9	1.5	30.0
4-Methyl-2-pentanone (MIBK)		96.8	71.6	125.2	3.8	30.0
2-Hexanone		95.8	55.4	136.9	4.4	30.0
Carbon tetrachloride		104.3	72.6	133.0	1.6	30.0
Benzene		99.2	79.9	124.9	0.7	30.0
1,2-Dichloroethane		96.4	76.0	126.3	2.3	30.0
Trichloroethene		102.7	79.7	124.2	0.8	30.0
1,2-Dichloropropane		97.3	78.6	126.4	0.4	30.0
Bromodichloromethane		105.6	80.4	128.2	0.7	30.0
Dibromomethane		117.6	76.9	122.1	0.6	30.0
cis-1,3-Dichloropropene		104.2	79.8	129.9	0.1	30.0
Toluene		100.2	79.8	124.5	0.9	30.0
trans-1,3-Dichloropropene		104.4	74.0	131.3	1.8	30.0
1,1,2-Trichloroethane		103.9	78.7	123.1	0.5	30.0
Tetrachloroethene		108.8	74.5	124.5	1.4	30.0
trans-1,4-Dichloro-2-butene		99.7	68.6	135.4	1.0	30.0
Dibromochloromethane		118.4	74.6	127.2	0.6	30.0
1,2-Dibromoethane		112.3	70.3	133.7	0.5	30.0
Chlorobenzene		109.7	79.2	122.7	3.2	30.0

Organics - Volatiles, Prep Batch ID: VF240524W3 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: 240524B9.LCSDW24B, Parent Sample ID: 240524B9.LCSW24B

Run in Batch: 240524B9, Run Date: 05/25/2024 01:03, Prep Date: 05/24/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,1,1,2-Tetrachloroethane		110.7	80.3	128.2	1.0	30.0
Ethylbenzene		105.8	79.5	129.1	3.1	30.0
p,m-Xylene		107.4	79.4	132.2	3.1	30.0
o-Xylene		105.0	80.2	131.0	2.7	30.0
Styrene		111.7	69.5	126.7	1.6	30.0
Isopropylbenzene		107.2	74.4	121.5	2.8	30.0
Bromoform		120.8	69.4	128.0	0.2	30.0
1,1,2,2-Tetrachloroethane		105.8	79.8	126.3	1.8	30.0
1,2,3-Trichloropropane		106.6	78.3	138.8	0.2	30.0
n-Propylbenzene		104.4	82.0	130.7	2.2	30.0
Bromobenzene		112.2	78.7	124.6	2.2	30.0
1,3,5-Trimethylbenzene		111.8	81.3	128.9	2.0	30.0
tert-Butylbenzene		102.8	80.7	128.9	2.3	30.0
1,2,4-Trimethylbenzene		111.0	81.4	130.8	1.1	30.0
sec-Butylbenzene		98.4	77.4	129.8	3.1	30.0
p-Isopropyltoluene		102.9	79.8	137.5	2.6	30.0
1,3-Dichlorobenzene		106.6	77.0	131.3	2.1	30.0
1,4-Dichlorobenzene		108.1	20.7	137.7	1.5	30.0
1,2-Dichlorobenzene		108.0	10.0	166.2	1.4	30.0
1,2,3-Trimethylbenzene		107.5	76.3	124.2	2.4	30.0
n-Butylbenzene		100.4	80.0	133.3	1.1	30.0
Hexachloroethane		116.2	23.8	138.1	3.6	30.0
1,2-Dibromo-3-chloropropane		106.7	21.2	189.4	0.8	30.0
1,2,4-Trichlorobenzene		117.0	27.4	143.4	0.4	30.0
1,2,3-Trichlorobenzene		117.8	75.4	131.4	1.3	30.0
Naphthalene		113.1	32.9	135.8	0.3	30.0
2-Methylnaphthalene		105.1	25.5	165.5	0.5	30.0

Matrix Spike (MS)

Lab Sample ID: 240524B9.6244214M, Parent Sample ID: S62442.04

Run in Batch: 240524B9, Run Date: 05/25/2024 10:13, Prep Date: 05/24/2024, Matrix: WW, Dilution: 20

Analyte	Flags	% Rec	LCL	UCL
Diethyl ether		96.9	67.4	121.2
Acetone		86.9	29.9	161.5
Methyl iodide		110.9	68.8	116.4
Carbon disulfide		95.6	63.8	137.4
tert-Methyl butyl ether (MTBE)		98.3	73.2	122.4
Acrylonitrile		89.0	69.9	128.9
2-Butanone (MEK)		93.3	44.0	134.4
Dichlorodifluoromethane		88.7	10.0	222.8
Chloromethane		89.4	23.8	166.5
Vinyl chloride		93.7	43.5	149.1
Bromomethane		94.1	56.8	151.3
Chloroethane		93.9	53.4	149.4
Trichlorofluoromethane		92.8	59.7	151.8
1,1-Dichloroethene		92.2	69.6	139.4

Organics - Volatiles, Prep Batch ID: VF240524W3 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Matrix Spike (MS) (continued)

Lab Sample ID: 240524B9.6244214M, Parent Sample ID: S62442.04

Run in Batch: 240524B9, Run Date: 05/25/2024 10:13, Prep Date: 05/24/2024, Matrix: WW, Dilution: 20

Analyte	Flags	% Rec	LCL	UCL
Methylene chloride		94.1	73.3	121.1
trans-1,2-Dichloroethene		91.1	73.6	129.3
1,1-Dichloroethane		93.5	71.5	126.2
cis-1,2-Dichloroethene		99.1	76.6	122.1
Tetrahydrofuran		71.0	59.0	117.9
Chloroform		92.0	78.4	124.0
Bromochloromethane		106.8	78.2	120.8
1,1,1-Trichloroethane		95.4	79.4	130.9
4-Methyl-2-pentanone (MIBK)		90.3	71.6	125.2
2-Hexanone		91.7	55.4	136.9
Carbon tetrachloride		102.0	72.6	133.0
Benzene		95.4	79.9	124.9
1,2-Dichloroethane		89.8	76.0	126.3
Trichloroethene		98.8	79.7	124.2
1,2-Dichloropropane		93.5	78.6	126.4
Bromodichloromethane		99.9	80.4	128.2
Dibromomethane		112.0	76.9	122.1
cis-1,3-Dichloropropene		94.6	79.8	129.9
Toluene		97.0	79.8	124.5
trans-1,3-Dichloropropene		93.7	74.0	131.3
1,1,2-Trichloroethane		99.4	78.7	123.1
Tetrachloroethene		106.9	74.5	124.5
trans-1,4-Dichloro-2-butene		74.5	68.6	135.4
Dibromochloromethane		112.0	74.6	127.2
1,2-Dibromoethane		105.4	70.3	133.7
Chlorobenzene		104.0	79.2	122.7
1,1,1,2-Tetrachloroethane		104.5	80.3	128.2
Ethylbenzene		102.8	79.5	129.1
p,m-Xylene		104.4	79.4	132.2
o-Xylene		101.0	80.2	131.0
Styrene		106.5	69.5	126.7
Isopropylbenzene		103.7	74.4	121.5
Bromoform		114.2	69.4	128.0
1,1,2,2-Tetrachloroethane		99.8	79.8	126.3
1,2,3-Trichloropropane		100.3	78.3	138.8
n-Propylbenzene		98.6	82.0	130.7
Bromobenzene		107.4	78.7	124.6
1,3,5-Trimethylbenzene		103.8	81.3	128.9
tert-Butylbenzene		97.1	80.7	128.9
1,2,4-Trimethylbenzene		82.3	81.4	130.8
sec-Butylbenzene	*	21.8	77.4	129.8
p-Isopropyltoluene		96.6	79.8	137.5
1,3-Dichlorobenzene		100.1	77.0	131.3
1,4-Dichlorobenzene		101.3	20.7	137.7
1,2-Dichlorobenzene		102.1	10.0	166.2
1,2,3-Trimethylbenzene		99.7	76.3	124.2

Organics - Volatiles, Prep Batch ID: VF240524W3 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Matrix Spike (MS) (continued)

Lab Sample ID: 240524B9.6244214M, Parent Sample ID: S62442.04

Run in Batch: 240524B9, Run Date: 05/25/2024 10:13, Prep Date: 05/24/2024, Matrix: WW, Dilution: 20

Analyte	Flags	% Rec	LCL	UCL
n-Butylbenzene		88.4	80.0	133.3
Hexachloroethane		110.0	23.8	138.1
1,2-Dibromo-3-chloropropane		100.7	21.2	189.4
1,2,4-Trichlorobenzene		113.7	27.4	143.4
1,2,3-Trichlorobenzene		112.9	75.4	131.4
Naphthalene		112.3	32.9	135.8
2-Methylnaphthalene		104.5	25.5	165.5

Matrix Spike (MS)

Lab Sample ID: 240524B9.6247002M, Parent Sample ID: S62470.01

Run in Batch: 240524B9, Run Date: 05/25/2024 01:27, Prep Date: 05/24/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Diethyl ether		95.8	67.4	121.2
Acetone		78.0	29.9	161.5
Methyl iodide		109.4	68.8	116.4
Carbon disulfide		98.4	63.8	137.4
tert-Methyl butyl ether (MTBE)		96.0	73.2	122.4
Acrylonitrile		85.4	69.9	128.9
2-Butanone (MEK)		87.5	44.0	134.4
Dichlorodifluoromethane		88.4	10.0	222.8
Chloromethane		88.6	23.8	166.5
Vinyl chloride		91.3	43.5	149.1
Bromomethane		92.3	56.8	151.3
Chloroethane		91.6	53.4	149.4
Trichlorofluoromethane		92.1	59.7	151.8
1,1-Dichloroethene		92.3	69.6	139.4
Methylene chloride		93.5	73.3	121.1
trans-1,2-Dichloroethene		91.1	73.6	129.3
1,1-Dichloroethane		92.6	71.5	126.2
cis-1,2-Dichloroethene		98.5	76.6	122.1
Tetrahydrofuran		77.6	59.0	117.9
Chloroform		91.5	78.4	124.0
Bromochloromethane		105.3	78.2	120.8
1,1,1-Trichloroethane		95.6	79.4	130.9
4-Methyl-2-pentanone (MIBK)		89.9	71.6	125.2
2-Hexanone		91.7	55.4	136.9
Carbon tetrachloride		103.4	72.6	133.0
Benzene		95.0	79.9	124.9
1,2-Dichloroethane		90.3	76.0	126.3
Trichloroethene		99.3	79.7	124.2
1,2-Dichloropropane		93.2	78.6	126.4
Bromodichloromethane		101.5	80.4	128.2
Dibromomethane		110.5	76.9	122.1
cis-1,3-Dichloropropene		98.5	79.8	129.9
Toluene		96.5	79.8	124.5
trans-1,3-Dichloropropene		98.3	74.0	131.3

Organics - Volatiles, Prep Batch ID: VF240524W3 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Matrix Spike (MS) (continued)

Lab Sample ID: 240524B9.6247002M, Parent Sample ID: S62470.01

Run in Batch: 240524B9, Run Date: 05/25/2024 01:27, Prep Date: 05/24/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,1,2-Trichloroethane		99.7	78.7	123.1
Tetrachloroethene		106.9	74.5	124.5
trans-1,4-Dichloro-2-butene		94.6	68.6	135.4
Dibromochloromethane		112.9	74.6	127.2
1,2-Dibromoethane		106.3	70.3	133.7
Chlorobenzene		104.7	79.2	122.7
1,1,1,2-Tetrachloroethane		106.2	80.3	128.2
Ethylbenzene		102.0	79.5	129.1
p,m-Xylene		103.5	79.4	132.2
o-Xylene		100.6	80.2	131.0
Styrene		105.7	69.5	126.7
Isopropylbenzene		103.9	74.4	121.5
Bromoform		113.9	69.4	128.0
1,1,2,2-Tetrachloroethane		100.9	79.8	126.3
1,2,3-Trichloropropane		99.8	78.3	138.8
n-Propylbenzene		98.6	82.0	130.7
Bromobenzene		106.6	78.7	124.6
1,3,5-Trimethylbenzene		104.5	81.3	128.9
tert-Butylbenzene		98.1	80.7	128.9
1,2,4-Trimethylbenzene		104.7	81.4	130.8
sec-Butylbenzene		93.2	77.4	129.8
p-Isopropyltoluene		96.3	79.8	137.5
1,3-Dichlorobenzene		97.8	77.0	131.3
1,4-Dichlorobenzene		101.1	20.7	137.7
1,2-Dichlorobenzene		100.0	10.0	166.2
1,2,3-Trimethylbenzene		99.2	76.3	124.2
n-Butylbenzene		93.3	80.0	133.3
Hexachloroethane		109.1	23.8	138.1
1,2-Dibromo-3-chloropropane		96.0	21.2	189.4
1,2,4-Trichlorobenzene		107.0	27.4	143.4
1,2,3-Trichlorobenzene		107.5	75.4	131.4
Naphthalene		101.8	32.9	135.8
2-Methylnaphthalene		94.6	25.5	165.5

Matrix Spike Duplicate (MSD)

Lab Sample ID: 240524B9.6244215N, Parent Sample ID: 240524B9.6244214M

Run in Batch: 240524B9, Run Date: 05/25/2024 10:38, Prep Date: 05/24/2024, Matrix: WW, Dilution: 20

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Diethyl ether		92.8	67.4	121.2	4.4	30.0
Acetone		82.8	29.9	161.5	4.6	30.0
Methyl iodide		105.5	68.8	116.4	5.0	30.0
Carbon disulfide		90.7	63.8	137.4	5.3	30.0
tert-Methyl butyl ether (MTBE)		93.7	73.2	122.4	4.8	30.0
Acrylonitrile		86.2	69.9	128.9	3.2	30.0
2-Butanone (MEK)		88.9	44.0	134.4	4.8	30.0
Dichlorodifluoromethane		83.1	10.0	222.8	6.5	30.0

Organics - Volatiles, Prep Batch ID: VF240524W3 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Matrix Spike Duplicate (MSD) (continued)

Lab Sample ID: 240524B9.6244215N, Parent Sample ID: 240524B9.6244214M

Run in Batch: 240524B9, Run Date: 05/25/2024 10:38, Prep Date: 05/24/2024, Matrix: WW, Dilution: 20

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Chloromethane		83.2	23.8	166.5	7.2	30.0
Vinyl chloride		87.5	43.5	149.1	6.8	30.0
Bromomethane		87.9	56.8	151.3	6.8	30.0
Chloroethane		86.8	53.4	149.4	7.9	30.0
Trichlorofluoromethane		87.9	59.7	151.8	5.4	30.0
1,1-Dichloroethene		87.2	69.6	139.4	5.6	30.0
Methylene chloride		90.9	73.3	121.1	3.5	30.0
trans-1,2-Dichloroethene		87.2	73.6	129.3	4.4	30.0
1,1-Dichloroethane		88.6	71.5	126.2	5.4	30.0
cis-1,2-Dichloroethene		95.0	76.6	122.1	4.2	30.0
Tetrahydrofuran		67.3	59.0	117.9	4.6	30.0
Chloroform		87.6	78.4	124.0	4.7	30.0
Bromochloromethane		100.7	78.2	120.8	5.8	30.0
1,1,1-Trichloroethane		90.8	79.4	130.9	5.0	30.0
4-Methyl-2-pentanone (MIBK)		88.1	71.6	125.2	2.5	30.0
2-Hexanone		89.0	55.4	136.9	3.0	30.0
Carbon tetrachloride		98.0	72.6	133.0	4.0	30.0
Benzene		93.0	79.9	124.9	2.5	30.0
1,2-Dichloroethane		87.8	76.0	126.3	2.3	30.0
Trichloroethene		95.0	79.7	124.2	3.9	30.0
1,2-Dichloropropane		90.8	78.6	126.4	2.9	30.0
Bromodichloromethane		96.2	80.4	128.2	3.8	30.0
Dibromomethane		108.9	76.9	122.1	2.7	30.0
cis-1,3-Dichloropropene		92.4	79.8	129.9	2.4	30.0
Toluene		93.4	79.8	124.5	3.7	30.0
trans-1,3-Dichloropropene		91.9	74.0	131.3	1.9	30.0
1,1,2-Trichloroethane		97.7	78.7	123.1	1.7	30.0
Tetrachloroethene		102.0	74.5	124.5	4.8	30.0
trans-1,4-Dichloro-2-butene		74.1	68.6	135.4	0.5	30.0
Dibromochloromethane		112.1	74.6	127.2	0.1	30.0
1,2-Dibromoethane		103.9	70.3	133.7	1.5	30.0
Chlorobenzene		102.4	79.2	122.7	1.5	30.0
1,1,1,2-Tetrachloroethane		103.9	80.3	128.2	0.6	30.0
Ethylbenzene		100.4	79.5	129.1	2.0	30.0
p,m-Xylene		101.1	79.4	132.2	2.6	30.0
o-Xylene		98.4	80.2	131.0	2.3	30.0
Styrene		103.8	69.5	126.7	2.6	30.0
Isopropylbenzene		101.9	74.4	121.5	1.7	30.0
Bromoform		113.8	69.4	128.0	0.3	30.0
1,1,2,2-Tetrachloroethane		101.1	79.8	126.3	1.3	30.0
1,2,3-Trichloropropane		100.1	78.3	138.8	0.2	30.0
n-Propylbenzene		97.0	82.0	130.7	1.5	30.0
Bromobenzene		105.3	78.7	124.6	2.0	30.0
1,3,5-Trimethylbenzene		101.3	81.3	128.9	1.9	30.0
tert-Butylbenzene		95.6	80.7	128.9	1.3	30.0
1,2,4-Trimethylbenzene		95.7	81.4	130.8	7.9	30.0

Organics - Volatiles, Prep Batch ID: VF240524W3 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Matrix Spike Duplicate (MSD) (continued)

Lab Sample ID: 240524B9.6244215N, Parent Sample ID: 240524B9.6244214M

Run in Batch: 240524B9, Run Date: 05/25/2024 10:38, Prep Date: 05/24/2024, Matrix: WW, Dilution: 20

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
sec-Butylbenzene	*	19.6	77.4	129.8	2.3	30.0
p-Isopropyltoluene		91.7	79.8	137.5	4.9	30.0
1,3-Dichlorobenzene		99.1	77.0	131.3	1.0	30.0
1,4-Dichlorobenzene		100.4	20.7	137.7	0.9	30.0
1,2-Dichlorobenzene		102.4	10.0	166.2	0.3	30.0
1,2,3-Trimethylbenzene		97.9	76.3	124.2	1.5	30.0
n-Butylbenzene		87.6	80.0	133.3	0.7	30.0
Hexachloroethane		109.8	23.8	138.1	0.2	30.0
1,2-Dibromo-3-chloropropane		101.1	21.2	189.4	0.4	30.0
1,2,4-Trichlorobenzene		113.5	27.4	143.4	0.2	30.0
1,2,3-Trichlorobenzene		113.8	75.4	131.4	0.8	30.0
Naphthalene		110.5	32.9	135.8	1.4	30.0
2-Methylnaphthalene		105.9	25.5	165.5	1.0	30.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 240524B9.6247003N, Parent Sample ID: 240524B9.6247002M

Run in Batch: 240524B9, Run Date: 05/25/2024 01:51, Prep Date: 05/24/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Diethyl ether		90.7	67.4	121.2	5.4	30.0
Acetone		76.0	29.9	161.5	2.6	30.0
Methyl iodide		104.3	68.8	116.4	4.8	30.0
Carbon disulfide		92.6	63.8	137.4	6.0	30.0
tert-Methyl butyl ether (MTBE)		92.5	73.2	122.4	3.8	30.0
Acrylonitrile		82.9	69.9	128.9	2.9	30.0
2-Butanone (MEK)		87.1	44.0	134.4	0.5	30.0
Dichlorodifluoromethane		84.0	10.0	222.8	5.1	30.0
Chloromethane		83.1	23.8	166.5	6.5	30.0
Vinyl chloride		87.2	43.5	149.1	4.6	30.0
Bromomethane		86.4	56.8	151.3	6.6	30.0
Chloroethane		86.1	53.4	149.4	6.2	30.0
Trichlorofluoromethane		87.7	59.7	151.8	4.8	30.0
1,1-Dichloroethene		88.3	69.6	139.4	4.5	30.0
Methylene chloride		88.9	73.3	121.1	5.0	30.0
trans-1,2-Dichloroethene		87.2	73.6	129.3	4.5	30.0
1,1-Dichloroethane		89.2	71.5	126.2	3.8	30.0
cis-1,2-Dichloroethene		93.5	76.6	122.1	5.1	30.0
Tetrahydrofuran		74.4	59.0	117.9	4.3	30.0
Chloroform		87.0	78.4	124.0	5.0	30.0
Bromochloromethane		100.0	78.2	120.8	5.2	30.0
1,1,1-Trichloroethane		90.2	79.4	130.9	5.8	30.0
4-Methyl-2-pentanone (MIBK)		89.0	71.6	125.2	1.0	30.0
2-Hexanone		87.5	55.4	136.9	4.7	30.0
Carbon tetrachloride		100.5	72.6	133.0	2.9	30.0
Benzene		92.9	79.9	124.9	2.2	30.0
1,2-Dichloroethane		87.3	76.0	126.3	3.3	30.0
Trichloroethene		96.3	79.7	124.2	3.0	30.0

Organics - Volatiles, Prep Batch ID: VF240524W3 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Matrix Spike Duplicate (MSD) (continued)

Lab Sample ID: 240524B9.6247003N, Parent Sample ID: 240524B9.6247002M

Run in Batch: 240524B9, Run Date: 05/25/2024 01:51, Prep Date: 05/24/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,2-Dichloropropane		90.0	78.6	126.4	3.4	30.0
Bromodichloromethane		96.6	80.4	128.2	4.9	30.0
Dibromomethane		106.6	76.9	122.1	3.6	30.0
cis-1,3-Dichloropropene		94.9	79.8	129.9	3.7	30.0
Toluene		93.1	79.8	124.5	3.7	30.0
trans-1,3-Dichloropropene		94.2	74.0	131.3	4.2	30.0
1,1,2-Trichloroethane		96.3	78.7	123.1	3.5	30.0
Tetrachloroethene		102.4	74.5	124.5	4.3	30.0
trans-1,4-Dichloro-2-butene		100.0	68.6	135.4	5.5	30.0
Dibromochloromethane		109.8	74.6	127.2	2.8	30.0
1,2-Dibromoethane		102.8	70.3	133.7	3.3	30.0
Chlorobenzene		103.2	79.2	122.7	1.5	30.0
1,1,1,2-Tetrachloroethane		103.6	80.3	128.2	2.5	30.0
Ethylbenzene		101.1	79.5	129.1	0.8	30.0
p,m-Xylene		102.3	79.4	132.2	1.2	30.0
o-Xylene		99.3	80.2	131.0	1.4	30.0
Styrene		103.4	69.5	126.7	2.3	30.0
Isopropylbenzene		103.1	74.4	121.5	0.7	30.0
Bromoform		112.4	69.4	128.0	1.3	30.0
1,1,2,2-Tetrachloroethane		100.1	79.8	126.3	0.8	30.0
1,2,3-Trichloropropane		98.4	78.3	138.8	1.5	30.0
n-Propylbenzene		97.6	82.0	130.7	1.0	30.0
Bromobenzene		103.6	78.7	124.6	2.9	30.0
1,3,5-Trimethylbenzene		104.1	81.3	128.9	0.3	30.0
tert-Butylbenzene		97.1	80.7	128.9	1.0	30.0
1,2,4-Trimethylbenzene		103.0	81.4	130.8	1.7	30.0
sec-Butylbenzene		93.9	77.4	129.8	0.7	30.0
p-Isopropyltoluene		97.3	79.8	137.5	1.1	30.0
1,3-Dichlorobenzene		98.2	77.0	131.3	0.5	30.0
1,4-Dichlorobenzene		99.3	20.7	137.7	1.9	30.0
1,2-Dichlorobenzene		99.3	10.0	166.2	0.7	30.0
1,2,3-Trimethylbenzene		100.2	76.3	124.2	1.1	30.0
n-Butylbenzene		94.3	80.0	133.3	1.1	30.0
Hexachloroethane		109.8	23.8	138.1	0.7	30.0
1,2-Dibromo-3-chloropropane		100.6	21.2	189.4	4.6	30.0
1,2,4-Trichlorobenzene		107.3	27.4	143.4	0.3	30.0
1,2,3-Trichlorobenzene		108.5	75.4	131.4	1.0	30.0
Naphthalene		102.6	32.9	135.8	0.8	30.0
2-Methylnaphthalene		94.6	25.5	165.5	0.0	30.0

Merit Laboratories Login Checklist

Lab Set ID: S62470
Client: ARCADIS_NOVI (ARCADIS U.S., Inc.)
Project: 30214036.00102 / RACER Lansing GWS
Submitted: 05/24/2024 08:00 Login User: MMC

Attention: Kaitlyn Hunt
Address: Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Selection				Description	Note
Sample Receiving					
01.	☐ Yes	☒ No	☐ N/A	Samples are received at 4C +/- 2C Thermometer #	IR 7.3
02.	☒ Yes	☐ No	☐ N/A	Received on ice/ cooling process begun	
03.	☐ Yes	☒ No	☐ N/A	Samples shipped	
04.	☒ Yes	☐ No	☐ N/A	Samples left in 24 hr. drop box	
05.	☒ Yes	☐ No	☐ N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	☒ Yes	☐ No	☐ N/A	COC adequately filled out	
07.	☒ Yes	☐ No	☐ N/A	COC signed and relinquished to the lab	
08.	☒ Yes	☐ No	☐ N/A	Sample tag on bottles match COC	
09.	☐ Yes	☒ No	☐ N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	☒ Yes	☐ No	☐ N/A	Do sample have correct chemical preservation	
11.	☐ Yes	☐ No	☒ N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	☐ Yes	☒ No	☐ N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	☒ Yes	☐ No	☐ N/A	All bottles intact	
14.	☒ Yes	☐ No	☐ N/A	Appropriate analytical bottles are used	
15.	☒ Yes	☐ No	☐ N/A	Merit bottles used	
16.	☒ Yes	☐ No	☐ N/A	Sufficient sample volume received	
17.	☐ Yes	☒ No	☐ N/A	Samples require laboratory filtration	
18.	☒ Yes	☐ No	☐ N/A	Samples submitted within holding time	
19.	☐ Yes	☒ No	☐ N/A	Do water VOC or TOX bottles contain headspace	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Plant 6

Merit Laboratories, Inc.

2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Tiffany Linder, Kaitlyn Hunt
COMPANY: Arcadis
ADDRESS: 28550 Cabot Drive, STE 500
CITY: Novi STATE: MI ZIP CODE: 48377
PHONE NO.: 947-777-5215 FAX NO.: P.O. NO.:
E-MAIL ADDRESS: kaitlyn.hunt@arcadis.com QUOTE NO.:

INVOICE TO

CONTACT NAME: ☒ SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: E-MAIL ADDRESS: tiffany.linder@arcadis.com

PROJECT NO./NAME: 30214036.00102/ RACER Lansing GWS
SAMPLER(S) - PLEASE PRINT/SIGN NAME:

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☒ EDD ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐ OHIO VAP. ☐ Drinking Water ☐ DoD ☐ NPDES

Project Locations: ☐ Detroit ☐ New York ☐ Other

Special Instructions

MERIT LAB NO. FOR LAB USE ONLY	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	1,4-Dioxane - 8260 SIMS	VOC - 8260 SIMS
.01/.02/.03	5/23/24	1500	MW-22-152_052324	GW	9		9							X
62470.04	5/23/24	1605	MW-22-154_052324	GW	3		3							X
.05	5/23/24	—	Trip Blank	GW	1		1							X

RELINQUISHED BY: SIGNATURE/ORGANIZATION	Arcadis ☒ Sampler	DATE 5/23/24	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION	Merit Drop Box	DATE 5/23/24	TIME
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

RELINQUISHED BY: SIGNATURE/ORGANIZATION	Merit Drop BOX	DATE 5/24/24	TIME 0800
RECEIVED BY: SIGNATURE/ORGANIZATION	M Cleland	DATE 5/24/24	TIME 0800

SEAL NO. SEAL INTACT YES☐ NO☐ INITIALS
SEAL NO. SEAL INTACT YES☐ NO☐ INITIALS

NOTES: TEMP. ON ARRIVAL 7.3

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

Report of Analysis

Arcadis U.S., Inc.
630 Plaza Drive
Suite 600
Highlands Ranch, CO 80129
Attention: Tiffany Linder

Project Name: RACER Lansing

Project Number: 30214036.0370A

Lot Number:**ZE20006**

Date Completed:06/11/2024

06/11/2024 2:13 PM
Approved and released by:
Project Manager II: **Kathy E. Smith**





The electronic signature above is the equivalent of a handwritten signature.
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Case Narrative
Arcadis U.S., Inc.
Lot Number: ZE20006

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.
Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved The NELAC Institute (TNI) standards, the Pace Analytical Services, LLC ("Pace") Laboratory Quality Manual, standard operating procedures (SOPs), and Pace policies. Additionally, the DoD QSM version 5.4 has been followed for these samples, and specifically Table B-15 was followed for all PFAS samples. Any exceptions to the TNI standards, the Laboratory Quality Manual, SOPs, the DoD QSM, or policies are qualified on the results page or discussed below.

All QC associated with these samples were compliant with DOD QSM 5.4 table B-15 and our PFAS SOP. Correction factors (CF) are used to calculate the original sample concentration. The CF is the inverse of the concentration factor (sample volume / extract final volume) times the dilution factor (DF). The CF is calculated as follows:

CF = DF * FV / Vo
FV is volume of extract (mL)
Vo is initial sample volume (mL)
DF is dilution factor. For undiluted analysis, DF = 1.

Sample concentration for aqueous samples:
Concentration (ng/L) = Cs*CF,

$$C_s = \frac{\left(\frac{(A_s x C_{is})}{A_{is}}\right) - B}{M1}$$

Where

C_s is on column concentration of target analyte in the sample (ng/L)
C_{is} is concentration of internal standard in the sample (ng/L)
A_s is peak response of target analyte in the sample
A_{is} is peak response of internal standard in the sample
M1 is the average RF from ICAL or the slope from linear regression ICAL
B is the y-intercept from the ICAL

Pace is a TNI accredited laboratory; however, the following analyses are currently not listed on our TNI scope of accreditation: E. coli and Total coliforms SM 9223 B-2004, Solid Chemical Material: TOC Walkley-Black, Biological Tissue: All, Non-Potable Water: SGT-HEM EPA 1664B, Silica EPA 200.7, Boron, Calcium, Silicon, Strontium EPA 200.8, Bicarbonate, Carbonate, and Hydroxide Alkalinity SM 2320 B-2011, SM 9221 C E-2006 & SM 9222D-2006, Strontium SW-846 6010D, VOC SM 6200 B-2011, Fecal Coliform Colilert-18. If you have any questions regarding this report, please contact the Pace Project Manager listed on the cover page.

Manual integration summaries are provided at the end of this report when applicable.

PFAS
Samples ZE20006-001, ZE20006-002, ZE20006-003, ZE20006-009, ZE20006-013, ZE20006-015 required centrifugation prior to extraction, due to excessive solids present in the samples. Centrifugation was performed following the PFAS Aqueous Centrifuge Protocol; samples were spiked with Surrogate (SUR; Extracted Internal Standard/EIS) and shaken vigorously before being poured into a conical bottle and centrifuged. The centrifuged aqueous sample was decanted back into the original sample bottle, off of the condensed solids remaining in the centrifuge bottle. Original sample bottle was rinsed as normal and centrifuge bottle was rinsed with 4mL of MeOH. Centrifuge bottle rinsate was added to the elution. Samples concentrated to <5mL and reconstituted to 5mL using MeOH by transfer pipet.

Surrogate recovery for the following samples was outside the upper control limit: ZE20006-002, ZE20006-004, ZE20006-005, ZE20006-007, ZE20006-009, ZE20006-010, ZE20006-011, ZE20006-012, ZE20006-013, ZE20006-014, ZE20006-015, ZE20006-016. These samples did not contain any target analytes >1/2 LOQ; therefore, re-extraction and/or re-analysis was not performed.

Surrogate recovery for the following sample was outside control limits: ZE20006-008. Re-extraction and/or re-analysis was performed with concurring results. The original analysis has been reported.

Surrogate recovery for the following sample was outside control limits: ZE20006-017. Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Sample Summary

Arcadis U.S., Inc.

Lot Number: ZE20006

Project Name: RACER Lansing

Project Number: 30214036.0370A

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	MW-14-61_051524	Aqueous	05/15/2024 1035	05/20/2024
002	MW-15-72_051524	Aqueous	05/15/2024 1215	05/20/2024
003	DUP-02_051524	Aqueous	05/15/2024	05/20/2024
004	EB-02_051524	Aqueous	05/15/2024 1415	05/20/2024
005	MW-16-81_051524	Aqueous	05/15/2024 1340	05/20/2024
006	EB-01_051424	Aqueous	05/14/2024 1622	05/20/2024
007	EB-03_051524	Aqueous	05/14/2024 1645	05/20/2024
008	MW-14-62_051524	Aqueous	05/15/2024 1740	05/20/2024
009	MW-12-09_051624	Aqueous	05/16/2024 1055	05/20/2024
010	MW-12-18_051624	Aqueous	05/16/2024 1240	05/20/2024
011	MW-14-59_051724	Aqueous	05/17/2024 0945	05/20/2024
012	MW-14-60_051724	Aqueous	05/17/2024 1140	05/20/2024
013	DUP-01_051624	Aqueous	05/16/2024	05/20/2024
014	EB-04_051624	Aqueous	05/16/2024 1140	05/20/2024
015	P2-MW-02_051624	Aqueous	05/16/2024 1150	05/20/2024
016	P2-MW-04_051624	Aqueous	05/16/2024 1400	05/20/2024
017	MW-21-139_051624	Aqueous	05/16/2024 1620	05/20/2024

(17 samples)

Detection Summary

Arcadis U.S., Inc.

Lot Number: ZE20006

Project Name: RACER Lansing

Project Number: 30214036.0370A

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	MW-14-61_051524	Aqueous	PFBA	PFAS by ID	3.6	J	ng/L	8
001	MW-14-61_051524	Aqueous	PFHpA	PFAS by ID	0.73	J	ng/L	8
001	MW-14-61_051524	Aqueous	PFOA	PFAS by ID	1.2	J	ng/L	8
001	MW-14-61_051524	Aqueous	PFPeA	PFAS by ID	3.5	J	ng/L	8
002	MW-15-72_051524	Aqueous	PFBS	PFAS by ID	7.5		ng/L	10
002	MW-15-72_051524	Aqueous	PFBA	PFAS by ID	5.5		ng/L	10
002	MW-15-72_051524	Aqueous	PFHxA	PFAS by ID	1.9	J	ng/L	10
002	MW-15-72_051524	Aqueous	PFPeA	PFAS by ID	3.7		ng/L	10
003	DUP-02_051524	Aqueous	PFBA	PFAS by ID	3.8		ng/L	12
003	DUP-02_051524	Aqueous	PFHpA	PFAS by ID	0.81	J	ng/L	12
003	DUP-02_051524	Aqueous	PFHxA	PFAS by ID	1.3	J	ng/L	12
003	DUP-02_051524	Aqueous	PFOA	PFAS by ID	1.1	J	ng/L	12
003	DUP-02_051524	Aqueous	PFPeA	PFAS by ID	3.4	J	ng/L	12
005	MW-16-81_051524	Aqueous	PFBA	PFAS by ID	8.1		ng/L	16
005	MW-16-81_051524	Aqueous	PFHpA	PFAS by ID	2.8	J	ng/L	16
005	MW-16-81_051524	Aqueous	PFHxA	PFAS by ID	6.2		ng/L	16
005	MW-16-81_051524	Aqueous	PFOA	PFAS by ID	0.70	J	ng/L	16
005	MW-16-81_051524	Aqueous	PFPeA	PFAS by ID	9.6		ng/L	16
008	MW-14-62_051524	Aqueous	8:2 FTS	PFAS by ID	3.0	JQ	ng/L	22
008	MW-14-62_051524	Aqueous	6:2 FTS	PFAS by ID	15	Q	ng/L	22
008	MW-14-62_051524	Aqueous	EtFOSAA	PFAS by ID	1.8	J	ng/L	22
008	MW-14-62_051524	Aqueous	MeFOSAA	PFAS by ID	1.0	J	ng/L	22
008	MW-14-62_051524	Aqueous	PFBS	PFAS by ID	1.7	J	ng/L	22
008	MW-14-62_051524	Aqueous	PFHpS	PFAS by ID	0.90	J	ng/L	22
008	MW-14-62_051524	Aqueous	PFOSA	PFAS by ID	3.9		ng/L	22
008	MW-14-62_051524	Aqueous	PFPeS	PFAS by ID	1.3	J	ng/L	22
008	MW-14-62_051524	Aqueous	PFHxS	PFAS by ID	7.9		ng/L	22
008	MW-14-62_051524	Aqueous	PFBA	PFAS by ID	40	Q	ng/L	22
008	MW-14-62_051524	Aqueous	PFDA	PFAS by ID	2.5	J	ng/L	22
008	MW-14-62_051524	Aqueous	PFHpA	PFAS by ID	23		ng/L	22
008	MW-14-62_051524	Aqueous	PFHxA	PFAS by ID	25		ng/L	22
008	MW-14-62_051524	Aqueous	PFNA	PFAS by ID	8.5		ng/L	22
008	MW-14-62_051524	Aqueous	PFOA	PFAS by ID	62		ng/L	22
008	MW-14-62_051524	Aqueous	PFPeA	PFAS by ID	22	Q	ng/L	22
008	MW-14-62_051524	Aqueous	PFOS	PFAS by ID	48		ng/L	22
009	MW-12-09_051624	Aqueous	PFBS	PFAS by ID	2.0	J	ng/L	24
009	MW-12-09_051624	Aqueous	PFHxS	PFAS by ID	4.0		ng/L	24
009	MW-12-09_051624	Aqueous	PFBA	PFAS by ID	12		ng/L	24
009	MW-12-09_051624	Aqueous	PFHpA	PFAS by ID	8.5		ng/L	24
009	MW-12-09_051624	Aqueous	PFHxA	PFAS by ID	11		ng/L	24
009	MW-12-09_051624	Aqueous	PFNA	PFAS by ID	0.58	J	ng/L	24
009	MW-12-09_051624	Aqueous	PFOA	PFAS by ID	19		ng/L	24
009	MW-12-09_051624	Aqueous	PFPeA	PFAS by ID	9.1		ng/L	24

Detection Summary (Continued)

Lot Number: ZE20006

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
009	MW-12-09_051624	Aqueous	PFOS	PFAS by ID	2.8	J	ng/L	24
010	MW-12-18_051624	Aqueous	PFBS	PFAS by ID	0.80	J	ng/L	26
010	MW-12-18_051624	Aqueous	PFHxS	PFAS by ID	0.69	J	ng/L	26
010	MW-12-18_051624	Aqueous	PFBA	PFAS by ID	7.0		ng/L	26
010	MW-12-18_051624	Aqueous	PFHpA	PFAS by ID	1.9	J	ng/L	26
010	MW-12-18_051624	Aqueous	PFHxA	PFAS by ID	2.9	J	ng/L	26
010	MW-12-18_051624	Aqueous	PFPeA	PFAS by ID	3.5	J	ng/L	26
011	MW-14-59_051724	Aqueous	PFHxS	PFAS by ID	2.8	J	ng/L	28
011	MW-14-59_051724	Aqueous	PFBA	PFAS by ID	15		ng/L	28
011	MW-14-59_051724	Aqueous	PFHpA	PFAS by ID	9.1		ng/L	28
011	MW-14-59_051724	Aqueous	PFHxA	PFAS by ID	21		ng/L	28
011	MW-14-59_051724	Aqueous	PFOA	PFAS by ID	15		ng/L	28
011	MW-14-59_051724	Aqueous	PFPeA	PFAS by ID	13		ng/L	28
012	MW-14-60_051724	Aqueous	PFHxS	PFAS by ID	7.0		ng/L	30
012	MW-14-60_051724	Aqueous	PFBA	PFAS by ID	24		ng/L	30
012	MW-14-60_051724	Aqueous	PFDA	PFAS by ID	1.1	J	ng/L	30
012	MW-14-60_051724	Aqueous	PFHpA	PFAS by ID	13		ng/L	30
012	MW-14-60_051724	Aqueous	PFHxA	PFAS by ID	20		ng/L	30
012	MW-14-60_051724	Aqueous	PFNA	PFAS by ID	4.8		ng/L	30
012	MW-14-60_051724	Aqueous	PFOA	PFAS by ID	29		ng/L	30
012	MW-14-60_051724	Aqueous	PFPeA	PFAS by ID	15		ng/L	30
012	MW-14-60_051724	Aqueous	PFOS	PFAS by ID	50		ng/L	30
013	DUP-01_051624	Aqueous	PFBS	PFAS by ID	2.1	J	ng/L	32
013	DUP-01_051624	Aqueous	PFPeS	PFAS by ID	0.66	J	ng/L	32
013	DUP-01_051624	Aqueous	PFHxS	PFAS by ID	3.8		ng/L	32
013	DUP-01_051624	Aqueous	PFBA	PFAS by ID	12		ng/L	32
013	DUP-01_051624	Aqueous	PFHpA	PFAS by ID	8.0		ng/L	32
013	DUP-01_051624	Aqueous	PFHxA	PFAS by ID	13		ng/L	32
013	DUP-01_051624	Aqueous	PFNA	PFAS by ID	0.58	J	ng/L	32
013	DUP-01_051624	Aqueous	PFOA	PFAS by ID	19		ng/L	32
013	DUP-01_051624	Aqueous	PFPeA	PFAS by ID	9.7		ng/L	32
013	DUP-01_051624	Aqueous	PFOS	PFAS by ID	3.7	J	ng/L	32
015	P2-MW-02_051624	Aqueous	PFBA	PFAS by ID	1.2	J	ng/L	36
015	P2-MW-02_051624	Aqueous	PFDA	PFAS by ID	0.68	J	ng/L	36
015	P2-MW-02_051624	Aqueous	PFHpA	PFAS by ID	0.58	J	ng/L	36
015	P2-MW-02_051624	Aqueous	PFHxA	PFAS by ID	1.7	J	ng/L	36
015	P2-MW-02_051624	Aqueous	PFPeA	PFAS by ID	1.1	J	ng/L	36
015	P2-MW-02_051624	Aqueous	PFOS	PFAS by ID	1.9	J	ng/L	36
016	P2-MW-04_051624	Aqueous	PFBS	PFAS by ID	5.0		ng/L	38
016	P2-MW-04_051624	Aqueous	PFHxS	PFAS by ID	3.7	J	ng/L	38
016	P2-MW-04_051624	Aqueous	PFBA	PFAS by ID	12		ng/L	38
016	P2-MW-04_051624	Aqueous	PFDA	PFAS by ID	2.0	J	ng/L	38
016	P2-MW-04_051624	Aqueous	PFHpA	PFAS by ID	10		ng/L	38
016	P2-MW-04_051624	Aqueous	PFHxA	PFAS by ID	10		ng/L	38
016	P2-MW-04_051624	Aqueous	PFNA	PFAS by ID	2.4	J	ng/L	38
016	P2-MW-04_051624	Aqueous	PFOA	PFAS by ID	19		ng/L	38
016	P2-MW-04_051624	Aqueous	PFPeA	PFAS by ID	13		ng/L	38
016	P2-MW-04_051624	Aqueous	PFOS	PFAS by ID	24		ng/L	38

Detection Summary (Continued)

Lot Number: ZE20006

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
017	MW-21-139_051624	Aqueous	8:2 FTS	PFAS by ID	42		ng/L	40
017	MW-21-139_051624	Aqueous	6:2 FTS	PFAS by ID	37	Q	ng/L	40
017	MW-21-139_051624	Aqueous	PFBS	PFAS by ID	14		ng/L	40
017	MW-21-139_051624	Aqueous	PFHpS	PFAS by ID	31		ng/L	40
017	MW-21-139_051624	Aqueous	PFOSA	PFAS by ID	0.92	J	ng/L	40
017	MW-21-139_051624	Aqueous	PFPeS	PFAS by ID	17		ng/L	40
017	MW-21-139_051624	Aqueous	PFHxS	PFAS by ID	240		ng/L	40
017	MW-21-139_051624	Aqueous	PFBA	PFAS by ID	36		ng/L	40
017	MW-21-139_051624	Aqueous	PFDA	PFAS by ID	5.3		ng/L	40
017	MW-21-139_051624	Aqueous	PFHpA	PFAS by ID	55		ng/L	40
017	MW-21-139_051624	Aqueous	PFHxA	PFAS by ID	66		ng/L	40
017	MW-21-139_051624	Aqueous	PFNA	PFAS by ID	15		ng/L	40
017	MW-21-139_051624	Aqueous	PFOA	PFAS by ID	79		ng/L	40
017	MW-21-139_051624	Aqueous	PFPeA	PFAS by ID	71		ng/L	40
017	MW-21-139_051624	Aqueous	PFOS	PFAS by ID	1700		ng/L	40

(106 detections)

PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE20006-001**

Description: **MW-14-61_051524** Matrix: **Aqueous**

Date Sampled: **05/15/2024 1035** Project Name: **RACER Lansing**

Date Received: **05/20/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	05/28/2024 1600	ALM	05/24/2024 1053	12164

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.4	0.45	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.4	0.62	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.4	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.4	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.4	0.81	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.4	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.4	0.45	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.4	0.70	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.4	0.86	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.7	0.38	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.7	0.72	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.7	0.46	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.7	0.66	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.7	0.57	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.7	0.55	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.7	0.51	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**3.6**	**J**	**3.7**	**0.56**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.7	0.49	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.7	0.44	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**0.73**	**J**	**3.7**	**0.41**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.7	0.64	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.7	0.43	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**1.2**	**J**	**3.7**	**0.77**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**3.5**	**J**	**3.7**	**0.50**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.7	0.56	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.7	0.49	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.7	0.58	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.7	1.9	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		124	25-150
13C2_6:2FTS		143	25-150
13C2_8:2FTS		111	25-150
13C2_PFDoA		93	25-150
13C2_PFTeDA		87	25-150
13C3_PFBS		96	25-150
13C3_PFHxS		119	25-150
13C3-HFPO-DA		105	25-150
13C4_PFBA		75	25-150
13C4_PFHpA		108	25-150
13C5_PFHxA		115	25-150
13C5_PFPeA		104	25-150
13C6_PFDA		106	25-150
13C7_PFUdA		90	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**		Laboratory ID: **ZE20006-001**
Description: **MW-14-61_051524**		Matrix: **Aqueous**
Date Sampled: **05/15/2024 1035**	Project Name: **RACER Lansing**	
Date Received: **05/20/2024**	Project Number: **30214036.0370A**	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		106	25-150
13C8_PFOS		99	25-150
13C8_PFOSA		103	10-150
13C9_PFNA		104	25-150
d5-EtFOSAA		93	25-150
d3-MeFOSAA		106	25-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
ND = Not detected at or above the DL	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis			S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE20006-002**

Description: **MW-15-72_051524** Matrix: **Aqueous**

Date Sampled: **05/15/2024 1215** Project Name: **RACER Lansing**

Date Received: **05/20/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	05/28/2024 1610	ALM	05/24/2024 1053	12164

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.3	0.44	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.3	0.60	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.3	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.3	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.3	0.79	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.3	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.3	0.44	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.3	0.68	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.3	0.85	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**7.5**		**3.6**	**0.38**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.6	0.71	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.6	0.45	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.6	0.65	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.6	0.56	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.6	0.54	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.6	0.50	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**5.5**		**3.6**	**0.55**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.6	0.48	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.6	0.43	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.6	0.41	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**1.9**	**J**	**3.6**	**0.63**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.6	0.42	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.6	0.75	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**3.7**		**3.6**	**0.49**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.6	0.55	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.6	0.48	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.6	0.57	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.6	1.8	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	172	25-150
13C2_6:2FTS	N	162	25-150
13C2_8:2FTS		108	25-150
13C2_PFDoA		98	25-150
13C2_PFTeDA		94	25-150
13C3_PFBS		106	25-150
13C3_PFHxS		118	25-150
13C3-HFPO-DA		105	25-150
13C4_PFBA		77	25-150
13C4_PFHpA		111	25-150
13C5_PFHxA		122	25-150
13C5_PFPeA		97	25-150
13C6_PFDA		104	25-150
13C7_PFUdA		100	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**
Laboratory ID: **ZE20006-002**
Description: **MW-15-72_051524**
Matrix: **Aqueous**
Date Sampled: **05/15/2024 1215**
Project Name: **RACER Lansing**
Date Received: **05/20/2024**
Project Number: **30214036.0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		107	25-150
13C8_PFOS		109	25-150
13C8_PFOSA		112	10-150
13C9_PFNA		112	25-150
d5-EtFOSAA		111	25-150
d3-MeFOSAA		109	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE20006-003**

Description: **DUP-02_051524** Matrix: **Aqueous**

Date Sampled: **05/15/2024** Project Name: **RACER Lansing**

Date Received: **05/20/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	05/28/2024 1621	ALM	05/24/2024 1053	12164

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.3	0.44	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.3	0.61	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.3	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.3	0.80	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.3	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.3	0.44	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.3	0.69	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.3	0.85	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.7	0.38	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.7	0.71	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.7	0.46	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.7	0.65	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.7	0.56	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.7	0.54	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.7	0.50	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**3.8**		**3.7**	**0.55**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.7	0.48	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.7	0.43	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**0.81**	**J**	**3.7**	**0.41**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**1.3**	**J**	**3.7**	**0.63**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.7	0.42	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**1.1**	**J**	**3.7**	**0.76**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**3.4**	**J**	**3.7**	**0.50**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.7	0.55	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.7	0.48	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.7	0.57	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.7	1.8	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		124	25-150
13C2_6:2FTS		135	25-150
13C2_8:2FTS		100	25-150
13C2_PFDoA		101	25-150
13C2_PFTeDA		93	25-150
13C3_PFBS		107	25-150
13C3_PFHxS		113	25-150
13C3-HFPO-DA		107	25-150
13C4_PFBA		76	25-150
13C4_PFHpA		110	25-150
13C5_PFHxA		114	25-150
13C5_PFPeA		105	25-150
13C6_PFDA		98	25-150
13C7_PFUdA		95	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**		Laboratory ID: **ZE20006-003**
Description: **DUP-02_051524**		Matrix: **Aqueous**
Date Sampled: **05/15/2024**	Project Name: **RACER Lansing**	
Date Received: **05/20/2024**	Project Number: **30214036.0370A**	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		108	25-150
13C8_PFOS		91	25-150
13C8_PFOSA		103	10-150
13C9_PFNA		111	25-150
d5-EtFOSAA		105	25-150
d3-MeFOSAA		109	25-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
ND = Not detected at or above the DL	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis			S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE20006-004**

Description: **EB-02_051524** Matrix: **Aqueous**

Date Sampled: **05/15/2024 1415** Project Name: **RACER Lansing**

Date Received: **05/20/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	05/28/2024 1631	ALM	05/24/2024 1053	12164

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.5	0.45	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.5	0.62	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.5	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.5	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.5	0.82	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.5	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.5	0.45	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.5	0.71	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.5	0.88	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.8	0.39	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.8	0.73	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.8	0.47	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.8	0.67	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.8	0.58	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.8	0.56	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.8	0.52	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		3.8	0.56	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.8	0.49	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.8	0.44	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.8	0.42	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.8	0.65	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.8	0.43	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.8	0.78	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.8	0.51	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.8	0.56	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.8	0.50	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.8	0.59	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.8	1.9	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		106	25-150
13C2_6:2FTS	N	160	25-150
13C2_8:2FTS		108	25-150
13C2_PFDoA		108	25-150
13C2_PFTeDA		114	25-150
13C3_PFBS		118	25-150
13C3_PFHxS		126	25-150
13C3-HFPO-DA		126	25-150
13C4_PFBA		109	25-150
13C4_PFHpA		123	25-150
13C5_PFHxA		126	25-150
13C5_PFPeA		115	25-150
13C6_PFDA		123	25-150
13C7_PFUdA		104	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**		Laboratory ID: **ZE20006-004**
Description: **EB-02_051524**		Matrix: **Aqueous**
Date Sampled: **05/15/2024 1415**	Project Name: **RACER Lansing**	
Date Received: **05/20/2024**	Project Number: **30214036.0370A**	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		127	25-150
13C8_PFOS		112	25-150
13C8_PFOSA		106	10-150
13C9_PFNA		114	25-150
d5-EtFOSAA		120	25-150
d3-MeFOSAA		115	25-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
ND = Not detected at or above the DL	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis			S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE20006-005**

Description: **MW-16-81_051524** Matrix: **Aqueous**

Date Sampled: **05/15/2024 1340** Project Name: **RACER Lansing**

Date Received: **05/20/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	05/28/2024 1642	ALM	05/24/2024 1053	12164

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.7	0.40	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.7	0.56	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.7	1.3	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	6.7	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	6.7	0.73	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.7	1.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.7	0.41	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.7	0.63	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.7	0.78	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.4	0.35	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.4	0.65	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.4	0.42	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.4	0.60	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.4	0.50	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.4	0.46	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**8.1**		**3.4**	**0.50**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.4	0.44	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.4	0.40	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**2.8**	**J**	**3.4**	**0.37**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**6.2**		**3.4**	**0.58**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.4	0.39	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**0.70**	**J**	**3.4**	**0.69**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**9.6**		**3.4**	**0.46**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.4	0.50	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.4	0.44	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.4	0.52	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.4	1.7	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	228	25-150
13C2_6:2FTS	N	162	25-150
13C2_8:2FTS		108	25-150
13C2_PFDoA		91	25-150
13C2_PFTeDA		94	25-150
13C3_PFBS		96	25-150
13C3_PFHxS		118	25-150
13C3-HFPO-DA		96	25-150
13C4_PFBA		56	25-150
13C4_PFHpA		107	25-150
13C5_PFHxA		115	25-150
13C5_PFPeA		86	25-150
13C6_PFDA		102	25-150
13C7_PFUdA		92	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE20006-005**

Description: **MW-16-81_051524** Matrix: **Aqueous**

Date Sampled: **05/15/2024 1340** Project Name: **RACER Lansing**

Date Received: **05/20/2024** Project Number: **30214036.0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		122	25-150
13C8_PFOS		112	25-150
13C8_PFOSA		105	10-150
13C9_PFNA		112	25-150
d5-EtFOSAA		91	25-150
d3-MeFOSAA		105	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE20006-006**

Description: **EB-01_051424** Matrix: **Aqueous**

Date Sampled: **05/14/2024 1622** Project Name: **RACER Lansing**

Date Received: **05/20/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	05/28/2024 1703	ALM	05/24/2024 1053	12164

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.1	0.43	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.1	0.58	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.1	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.1	0.77	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.1	0.43	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.1	0.66	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.1	0.82	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.5	0.37	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.5	0.69	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.5	0.44	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.5	0.63	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.5	0.54	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.5	0.52	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.5	0.49	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		3.5	0.53	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.5	0.46	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.5	0.42	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.5	0.39	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.5	0.61	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.5	0.41	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.5	0.73	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.5	0.48	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.5	0.53	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.5	0.47	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.5	0.55	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.5	1.8	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		119	25-150
13C2_6:2FTS		147	25-150
13C2_8:2FTS		122	25-150
13C2_PFDoA		105	25-150
13C2_PFTeDA		102	25-150
13C3_PFBS		111	25-150
13C3_PFHxS		113	25-150
13C3-HFPO-DA		116	25-150
13C4_PFBA		111	25-150
13C4_PFHpA		118	25-150
13C5_PFHxA		125	25-150
13C5_PFPeA		108	25-150
13C6_PFDA		109	25-150
13C7_PFUdA		101	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**		Laboratory ID: **ZE20006-006**
Description: **EB-01_051424**		Matrix: **Aqueous**
Date Sampled: **05/14/2024 1622**	Project Name: **RACER Lansing**	
Date Received: **05/20/2024**	Project Number: **30214036.0370A**	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		118	25-150
13C8_PFOS		105	25-150
13C8_PFOSA		104	10-150
13C9_PFNA		112	25-150
d5-EtFOSAA		121	25-150
d3-MeFOSAA		115	25-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
ND = Not detected at or above the DL	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis			S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE20006-007**

Description: **EB-03_051524** Matrix: **Aqueous**

Date Sampled: **05/14/2024 1645** Project Name: **RACER Lansing**

Date Received: **05/20/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	05/28/2024 1735	ALM	05/24/2024 1053	12164

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.6	0.40	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.6	0.55	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.6	1.3	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	6.6	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		6.6	0.73	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.6	1.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.6	0.40	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.6	0.62	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.6	0.77	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.3	0.34	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.3	0.65	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.3	0.41	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.3	0.59	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.3	0.51	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.3	0.49	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.3	0.46	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		3.3	0.50	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.3	0.44	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.3	0.39	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.3	0.37	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.3	0.57	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.3	0.38	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.3	0.69	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.3	0.45	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.3	0.50	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.3	0.44	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.3	0.52	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.3	1.7	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		112	25-150
13C2_6:2FTS	N	153	25-150
13C2_8:2FTS		109	25-150
13C2_PFDoA		92	25-150
13C2_PFTeDA		96	25-150
13C3_PFBS		109	25-150
13C3_PFHxS		117	25-150
13C3-HFPO-DA		104	25-150
13C4_PFBA		108	25-150
13C4_PFHpA		115	25-150
13C5_PFHxA		114	25-150
13C5_PFPeA		107	25-150
13C6_PFDA		113	25-150
13C7_PFUdA		108	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**		Laboratory ID: **ZE20006-007**
Description: **EB-03_051524**		Matrix: **Aqueous**
Date Sampled: **05/14/2024 1645**	Project Name: **RACER Lansing**	
Date Received: **05/20/2024**	Project Number: **30214036.0370A**	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		120	25-150
13C8_PFOS		98	25-150
13C8_PFOSA		106	10-150
13C9_PFNA		105	25-150
d5-EtFOSAA		102	25-150
d3-MeFOSAA		112	25-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
ND = Not detected at or above the DL	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis			S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE20006-008**

Description: **MW-14-62_051524** Matrix: **Aqueous**

Date Sampled: **05/15/2024 1740** Project Name: **RACER Lansing**

Date Received: **05/20/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	05/28/2024 1746	ALM	05/24/2024 1053	12164

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.6	0.40	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.6	0.55	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	**39108-34-4**	**PFAS by ID SOP**	**3.0**	**JQ**	**6.6**	**1.3**	**ng/L**	**1**
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	**27619-97-2**	**PFAS by ID SOP**	**15**	**Q**	**6.6**	**1.6**	**ng/L**	**1**
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	6.6	0.72	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.6	1.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.6	0.40	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	**2991-50-6**	**PFAS by ID SOP**	**1.8**	**J**	**6.6**	**0.62**	**ng/L**	**1**
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	**2355-31-9**	**PFAS by ID SOP**	**1.0**	**J**	**6.6**	**0.77**	**ng/L**	**1**
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**1.7**	**J**	**3.3**	**0.34**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.3	0.64	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	**375-92-8**	**PFAS by ID SOP**	**0.90**	**J**	**3.3**	**0.41**	**ng/L**	**1**
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.3	0.59	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	**754-91-6**	**PFAS by ID SOP**	**3.9**		**3.3**	**0.50**	**ng/L**	**1**
Perfluoro-1-pentanesulfonic acid (PFPeS)	**2706-91-4**	**PFAS by ID SOP**	**1.3**	**J**	**3.3**	**0.49**	**ng/L**	**1**
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**7.9**		**3.3**	**0.45**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**40**	**Q**	**3.3**	**0.49**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	**335-76-2**	**PFAS by ID SOP**	**2.5**	**J**	**3.3**	**0.43**	**ng/L**	**1**
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.3	0.39	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**23**		**3.3**	**0.37**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**25**		**3.3**	**0.57**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**8.5**		**3.3**	**0.38**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**62**		**3.3**	**0.68**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**22**	**Q**	**3.3**	**0.45**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.3	0.49	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.3	0.44	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.3	0.52	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**48**		**3.3**	**1.6**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	215	25-150
13C2_6:2FTS	N	271	25-150
13C2_8:2FTS	N	247	25-150
13C2_PFDoA		91	25-150
13C2_PFTeDA		74	25-150
13C3_PFBS		83	25-150
13C3_PFHxS		103	25-150
13C3-HFPO-DA		55	25-150
13C4_PFBA	N	2.0	25-150
13C4_PFHpA		83	25-150
13C5_PFHxA		73	25-150
13C5_PFPeA	N	9.0	25-150
13C6_PFDA		97	25-150
13C7_PFUdA		94	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
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S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**
Laboratory ID: **ZE20006-008**
Description: **MW-14-62_051524**
Matrix: **Aqueous**
Date Sampled: **05/15/2024 1740**
Project Name: **RACER Lansing**
Date Received: **05/20/2024**
Project Number: **30214036.0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		87	25-150
13C8_PFOS		86	25-150
13C8_PFOSA		91	10-150
13C9_PFNA		84	25-150
d5-EtFOSAA		134	25-150
d3-MeFOSAA		132	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE20006-009**

Description: **MW-12-09_051624** Matrix: **Aqueous**

Date Sampled: **05/16/2024 1055** Project Name: **RACER Lansing**

Date Received: **05/20/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	05/28/2024 1756	ALM	05/24/2024 1053	12164

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.7	0.46	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.7	0.64	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.7	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.7	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.7	0.84	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.7	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.7	0.46	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.7	0.72	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.7	0.90	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**2.0**	**J**	**3.8**	**0.40**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.8	0.75	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.8	0.48	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.8	0.68	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.8	0.59	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.8	0.57	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**4.0**		**3.8**	**0.53**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**12**		**3.8**	**0.58**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.8	0.50	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.8	0.45	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**8.5**		**3.8**	**0.43**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**11**		**3.8**	**0.66**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**0.58**	**J**	**3.8**	**0.44**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**19**		**3.8**	**0.80**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**9.1**		**3.8**	**0.52**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.8	0.58	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.8	0.51	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.8	0.60	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**2.8**	**J**	**3.8**	**1.9**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	187	25-150
13C2_6:2FTS	N	199	25-150
13C2_8:2FTS		112	25-150
13C2_PFDoA		93	25-150
13C2_PFTeDA		89	25-150
13C3_PFBS		95	25-150
13C3_PFHxS		122	25-150
13C3-HFPO-DA		95	25-150
13C4_PFBA		77	25-150
13C4_PFHpA		109	25-150
13C5_PFHxA		119	25-150
13C5_PFPeA		102	25-150
13C6_PFDA		107	25-150
13C7_PFUdA		88	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**		Laboratory ID: **ZE20006-009**
Description: **MW-12-09_051624**		Matrix: **Aqueous**
Date Sampled: **05/16/2024 1055**	Project Name: **RACER Lansing**	
Date Received: **05/20/2024**	Project Number: **30214036.0370A**	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		110	25-150
13C8_PFOS		103	25-150
13C8_PFOSA		100	10-150
13C9_PFNA		109	25-150
d5-EtFOSAA		93	25-150
d3-MeFOSAA		102	25-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
ND = Not detected at or above the DL	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis			S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE20006-010**

Description: **MW-12-18_051624** Matrix: **Aqueous**

Date Sampled: **05/16/2024 1240** Project Name: **RACER Lansing**

Date Received: **05/20/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	05/28/2024 1807	ALM	05/24/2024 1053	12164

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.7	0.46	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.7	0.64	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.7	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.7	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.7	0.84	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.7	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.7	0.47	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.7	0.72	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.7	0.90	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**0.80**	**J**	**3.9**	**0.40**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.9	0.75	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.9	0.48	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.9	0.69	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.9	0.59	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.9	0.57	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**0.69**	**J**	**3.9**	**0.53**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**7.0**		**3.9**	**0.58**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.9	0.51	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.9	0.45	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**1.9**	**J**	**3.9**	**0.43**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**2.9**	**J**	**3.9**	**0.66**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.9	0.45	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.9	0.80	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**3.5**	**J**	**3.9**	**0.52**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.9	0.58	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.9	0.51	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.9	0.60	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.9	1.9	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	162	25-150
13C2_6:2FTS	N	161	25-150
13C2_8:2FTS		101	25-150
13C2_PFDoA		98	25-150
13C2_PFTeDA		110	25-150
13C3_PFBS		103	25-150
13C3_PFHxS		126	25-150
13C3-HFPO-DA		102	25-150
13C4_PFBA		81	25-150
13C4_PFHpA		107	25-150
13C5_PFHxA		126	25-150
13C5_PFPeA		103	25-150
13C6_PFDA		106	25-150
13C7_PFUdA		107	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**		Laboratory ID: **ZE20006-010**
Description: **MW-12-18_051624**		Matrix: **Aqueous**
Date Sampled: **05/16/2024 1240**	Project Name: **RACER Lansing**	
Date Received: **05/20/2024**	Project Number: **30214036.0370A**	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		113	25-150
13C8_PFOS		105	25-150
13C8_PFOSA		109	10-150
13C9_PFNA		108	25-150
d5-EtFOSAA		112	25-150
d3-MeFOSAA		106	25-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
ND = Not detected at or above the DL	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis			S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE20006-011**

Description: **MW-14-59_051724** Matrix: **Aqueous**

Date Sampled: **05/17/2024 0945** Project Name: **RACER Lansing**

Date Received: **05/20/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	05/28/2024 1818	ALM	05/24/2024 1053	12164

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.4	0.44	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.4	0.61	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.4	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.4	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.4	0.81	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.4	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.4	0.45	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.4	0.69	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.4	0.86	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.7	0.38	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.7	0.72	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.7	0.46	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.7	0.66	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.7	0.57	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.7	0.55	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**2.8**	**J**	**3.7**	**0.51**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**15**		**3.7**	**0.55**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.7	0.48	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.7	0.44	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**9.1**		**3.7**	**0.41**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**21**		**3.7**	**0.63**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.7	0.43	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**15**		**3.7**	**0.76**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**13**		**3.7**	**0.50**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.7	0.55	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.7	0.49	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.7	0.58	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.7	1.8	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	216	25-150
13C2_6:2FTS	N	219	25-150
13C2_8:2FTS		136	25-150
13C2_PFDoA		92	25-150
13C2_PFTeDA		107	25-150
13C3_PFBS		87	25-150
13C3_PFHxS		113	25-150
13C3-HFPO-DA		77	25-150
13C4_PFBA		43	25-150
13C4_PFHpA		90	25-150
13C5_PFHxA		85	25-150
13C5_PFPeA		66	25-150
13C6_PFDA		115	25-150
13C7_PFUdA		102	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE20006-011**

Description: **MW-14-59_051724** Matrix: **Aqueous**

Date Sampled: **05/17/2024 0945** Project Name: **RACER Lansing**

Date Received: **05/20/2024** Project Number: **30214036.0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		102	25-150
13C8_PFOS		102	25-150
13C8_PFOSA		109	10-150
13C9_PFNA		117	25-150
d5-EtFOSAA		108	25-150
d3-MeFOSAA		112	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE20006-012**

Description: **MW-14-60_051724** Matrix: **Aqueous**

Date Sampled: **05/17/2024 1140** Project Name: **RACER Lansing**

Date Received: **05/20/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	05/28/2024 1828	ALM	05/24/2024 1053	12164

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.5	0.45	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.5	0.62	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND	Q	7.5	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.5	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.5	0.82	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.5	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.5	0.45	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.5	0.70	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.5	0.87	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.8	0.39	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.8	0.73	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.8	0.47	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.8	0.67	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.8	0.57	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.8	0.56	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**7.0**		**3.8**	**0.52**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**24**		**3.8**	**0.56**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	**335-76-2**	**PFAS by ID SOP**	**1.1**	**J**	**3.8**	**0.49**	**ng/L**	**1**
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.8	0.44	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**13**		**3.8**	**0.42**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**20**		**3.8**	**0.64**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**4.8**		**3.8**	**0.43**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**29**		**3.8**	**0.78**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**15**		**3.8**	**0.51**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.8	0.56	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.8	0.50	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.8	0.59	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**50**		**3.8**	**1.9**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	259	25-150
13C2_6:2FTS	N	268	25-150
13C2_8:2FTS	N	246	25-150
13C2_PFDoA		95	25-150
13C2_PFTeDA		90	25-150
13C3_PFBS		96	25-150
13C3_PFHxS		107	25-150
13C3-HFPO-DA		79	25-150
13C4_PFBA		48	25-150
13C4_PFHpA		89	25-150
13C5_PFHxA		95	25-150
13C5_PFPeA		70	25-150
13C6_PFDA		110	25-150
13C7_PFUdA		109	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE20006-012**

Description: **MW-14-60_051724** Matrix: **Aqueous**

Date Sampled: **05/17/2024 1140** Project Name: **RACER Lansing**

Date Received: **05/20/2024** Project Number: **30214036.0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		101	25-150
13C8_PFOS		70	25-150
13C8_PFOSA		96	10-150
13C9_PFNA		53	25-150
d5-EtFOSAA		137	25-150
d3-MeFOSAA		124	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE20006-013**

Description: **DUP-01_051624** Matrix: **Aqueous**

Date Sampled: **05/16/2024** Project Name: **RACER Lansing**

Date Received: **05/20/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	05/28/2024 1850	ALM	05/24/2024 1053	12164

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.7	0.46	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.7	0.64	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.7	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.7	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.7	0.84	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.7	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.7	0.46	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.7	0.72	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.7	0.90	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**2.1**	**J**	**3.8**	**0.40**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.8	0.75	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.8	0.48	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.8	0.68	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.8	0.59	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	**2706-91-4**	**PFAS by ID SOP**	**0.66**	**J**	**3.8**	**0.57**	**ng/L**	**1**
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**3.8**		**3.8**	**0.53**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**12**		**3.8**	**0.58**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.8	0.50	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.8	0.45	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**8.0**		**3.8**	**0.43**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**13**		**3.8**	**0.66**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**0.58**	**J**	**3.8**	**0.44**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**19**		**3.8**	**0.80**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**9.7**		**3.8**	**0.52**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.8	0.58	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.8	0.51	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.8	0.60	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**3.7**	**J**	**3.8**	**1.9**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	186	25-150
13C2_6:2FTS	N	181	25-150
13C2_8:2FTS		112	25-150
13C2_PFDoA		82	25-150
13C2_PFTeDA		78	25-150
13C3_PFBS		102	25-150
13C3_PFHxS		117	25-150
13C3-HFPO-DA		98	25-150
13C4_PFBA		76	25-150
13C4_PFHpA		108	25-150
13C5_PFHxA		116	25-150
13C5_PFPeA		103	25-150
13C6_PFDA		104	25-150
13C7_PFUdA		92	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**		Laboratory ID: **ZE20006-013**
Description: **DUP-01_051624**		Matrix: **Aqueous**
Date Sampled: **05/16/2024**	Project Name: **RACER Lansing**	
Date Received: **05/20/2024**	Project Number: **30214036.0370A**	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		109	25-150
13C8_PFOS		93	25-150
13C8_PFOSA		99	10-150
13C9_PFNA		107	25-150
d5-EtFOSAA		102	25-150
d3-MeFOSAA		99	25-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
ND = Not detected at or above the DL	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis			S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE20006-014**

Description: **EB-04_051624** Matrix: **Aqueous**

Date Sampled: **05/16/2024 1140** Project Name: **RACER Lansing**

Date Received: **05/20/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	05/28/2024 1900	ALM	05/24/2024 1053	12164

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.2	0.43	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.2	0.60	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.2	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.2	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.2	0.79	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.2	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.2	0.44	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.2	0.68	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.2	0.84	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.6	0.37	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.6	0.70	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.6	0.45	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.6	0.64	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.6	0.55	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.6	0.54	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.6	0.50	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		3.6	0.54	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.6	0.47	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.6	0.43	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.6	0.40	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.6	0.62	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.6	0.42	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.6	0.75	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.6	0.49	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.6	0.54	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.6	0.48	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.6	0.56	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.6	1.8	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		106	25-150
13C2_6:2FTS	N	152	25-150
13C2_8:2FTS		114	25-150
13C2_PFDoA		95	25-150
13C2_PFTeDA		103	25-150
13C3_PFBS		111	25-150
13C3_PFHxS		129	25-150
13C3-HFPO-DA		104	25-150
13C4_PFBA		108	25-150
13C4_PFHpA		120	25-150
13C5_PFHxA		120	25-150
13C5_PFPeA		110	25-150
13C6_PFDA		104	25-150
13C7_PFUdA		102	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**		Laboratory ID: **ZE20006-014**
Description: **EB-04_051624**		Matrix: **Aqueous**
Date Sampled: **05/16/2024 1140**	Project Name: **RACER Lansing**	
Date Received: **05/20/2024**	Project Number: **30214036.0370A**	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		129	25-150
13C8_PFOS		102	25-150
13C8_PFOSA		111	10-150
13C9_PFNA		115	25-150
d5-EtFOSAA		109	25-150
d3-MeFOSAA		109	25-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
ND = Not detected at or above the DL	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis			S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE20006-015**

Description: **P2-MW-02_051624** Matrix: **Aqueous**

Date Sampled: **05/16/2024 1150** Project Name: **RACER Lansing**

Date Received: **05/20/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	05/28/2024 1911	ALM	05/24/2024 1053	12164

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.8	0.47	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.8	0.64	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.8	1.6	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.8	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.8	0.85	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.8	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.8	0.47	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.8	0.73	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.8	0.90	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.9	0.40	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.9	0.75	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.9	0.48	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.9	0.69	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.9	0.59	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.9	0.58	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.9	0.53	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**1.2**	**J**	**3.9**	**0.58**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	**335-76-2**	**PFAS by ID SOP**	**0.68**	**J**	**3.9**	**0.51**	**ng/L**	**1**
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.9	0.46	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**0.58**	**J**	**3.9**	**0.43**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**1.7**	**J**	**3.9**	**0.67**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.9	0.45	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.9	0.80	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**1.1**	**J**	**3.9**	**0.53**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.9	0.58	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.9	0.51	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.9	0.61	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**1.9**	**J**	**3.9**	**1.9**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	230	25-150
13C2_6:2FTS	N	231	25-150
13C2_8:2FTS		137	25-150
13C2_PFDoA		99	25-150
13C2_PFTeDA		93	25-150
13C3_PFBS		111	25-150
13C3_PFHxS		127	25-150
13C3-HFPO-DA		103	25-150
13C4_PFBA		84	25-150
13C4_PFHpA		112	25-150
13C5_PFHxA		119	25-150
13C5_PFPeA		112	25-150
13C6_PFDA		115	25-150
13C7_PFUdA		103	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE20006-015**

Description: **P2-MW-02_051624** Matrix: **Aqueous**

Date Sampled: **05/16/2024 1150** Project Name: **RACER Lansing**

Date Received: **05/20/2024** Project Number: **30214036.0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		124	25-150
13C8_PFOS		105	25-150
13C8_PFOSA		112	10-150
13C9_PFNA		121	25-150
d5-EtFOSAA		127	25-150
d3-MeFOSAA		121	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE20006-016**

Description: **P2-MW-04_051624** Matrix: **Aqueous**

Date Sampled: **05/16/2024 1400** Project Name: **RACER Lansing**

Date Received: **05/20/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	05/30/2024 1505	OMNS	05/29/2024 1329	12319

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.6	0.46	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.6	0.63	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND	Q	7.6	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.6	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.6	0.83	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.6	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.6	0.46	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND	Q	7.6	0.71	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.6	0.88	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**5.0**		**3.8**	**0.39**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.8	0.74	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.8	0.47	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.8	0.68	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.8	0.58	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.8	0.56	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**3.7**	**J**	**3.8**	**0.52**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**12**		**3.8**	**0.57**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	**335-76-2**	**PFAS by ID SOP**	**2.0**	**J**	**3.8**	**0.50**	**ng/L**	**1**
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.8	0.45	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**10**		**3.8**	**0.42**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**10**		**3.8**	**0.65**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**2.4**	**J**	**3.8**	**0.44**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**19**		**3.8**	**0.79**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**13**		**3.8**	**0.52**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.8	0.57	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.8	0.50	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.8	0.59	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**24**		**3.8**	**1.9**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	212	25-150
13C2_6:2FTS	N	321	25-150
13C2_8:2FTS	N	258	25-150
13C2_PFDoA		118	25-150
13C2_PFTeDA		107	25-150
13C3_PFBS		76	25-150
13C3_PFHxS		105	25-150
13C3-HFPO-DA		80	25-150
13C4_PFBA		42	25-150
13C4_PFHpA		73	25-150
13C5_PFHxA		80	25-150
13C5_PFPeA		61	25-150
13C6_PFDA		117	25-150
13C7_PFUdA		130	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE20006-016**

Description: **P2-MW-04_051624** Matrix: **Aqueous**

Date Sampled: **05/16/2024 1400** Project Name: **RACER Lansing**

Date Received: **05/20/2024** Project Number: **30214036.0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		100	25-150
13C8_PFOS		108	25-150
13C8_PFOSA		96	10-150
13C9_PFNA		101	25-150
d5-EtFOSAA	N	151	25-150
d3-MeFOSAA		132	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE20006-017**

Description: **MW-21-139_051624** Matrix: **Aqueous**

Date Sampled: **05/16/2024 1620** Project Name: **RACER Lansing**

Date Received: **05/20/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	05/30/2024 1537	OMNS	05/29/2024 1329	12319
2	SOP SPE	PFAS by ID SOP	10	06/03/2024 2102	OMNS	05/29/2024 1329	12319

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.6	0.46	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.6	0.63	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	**39108-34-4**	**PFAS by ID SOP**	**42**		**7.6**	**1.5**	**ng/L**	**1**
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	**27619-97-2**	**PFAS by ID SOP**	**37**	**Q**	**7.6**	**1.9**	**ng/L**	**1**
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.6	0.83	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.6	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.6	0.46	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.6	0.71	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.6	0.88	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**14**		**3.8**	**0.39**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.8	0.74	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	**375-92-8**	**PFAS by ID SOP**	**31**		**3.8**	**0.47**	**ng/L**	**1**
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.8	0.67	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	**754-91-6**	**PFAS by ID SOP**	**0.92**	**J**	**3.8**	**0.58**	**ng/L**	**1**
Perfluoro-1-pentanesulfonic acid (PFPeS)	**2706-91-4**	**PFAS by ID SOP**	**17**		**3.8**	**0.56**	**ng/L**	**1**
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**240**		**3.8**	**0.52**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**36**		**3.8**	**0.57**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	**335-76-2**	**PFAS by ID SOP**	**5.3**		**3.8**	**0.50**	**ng/L**	**1**
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.8	0.45	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**55**		**3.8**	**0.42**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**66**		**3.8**	**0.65**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**15**		**3.8**	**0.44**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**79**		**3.8**	**0.78**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**71**		**3.8**	**0.51**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.8	0.57	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.8	0.50	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.8	0.59	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**1700**		**38**	**19**	**ng/L**	**2**

Surrogate	Run 1 Q	Run 1 % Recovery	Run 1 Acceptance Limits	Run 2 Q	Run 2 % Recovery	Run 2 Acceptance Limits
13C2_4:2FTS	N	288	25-150	N	178	25-150
13C2_6:2FTS	N	244	25-150	N	199	25-150
13C2_8:2FTS		150	25-150		116	25-150
13C2_PFDoA		110	25-150		127	25-150
13C2_PFTeDA		105	25-150		133	25-150
13C3_PFBS		103	25-150		130	25-150
13C3_PFHxS		100	25-150		119	25-150
13C3-HFPO-DA		96	25-150		128	25-150
13C4_PFBA		69	25-150		126	25-150
13C4_PFHpA		95	25-150		134	25-150
13C5_PFHxA		120	25-150	N	151	25-150
13C5_PFPeA		93	25-150		131	25-150
13C6_PFDA		113	25-150	N	152	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE20006-017**

Description: **MW-21-139_051624** Matrix: **Aqueous**

Date Sampled: **05/16/2024 1620** Project Name: **RACER Lansing**

Date Received: **05/20/2024** Project Number: **30214036.0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		119	25-150		134	25-150
13C8_PFOA		121	25-150		137	25-150
13C8_PFOS		96	25-150		125	25-150
13C8_PFOSA		101	10-150		136	10-150
13C9_PFNA		100	25-150		139	25-150
d5-EtFOSAA		112	25-150		141	25-150
d3-MeFOSAA		124	25-150		134	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
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QC Summary

PFAS by LC/MS/MS - MB

Sample ID: ZQ12164-001
Batch: 12164
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 05/24/2024 1053

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
9Cl-PF3ONS	ND		1	8.0	0.48	ng/L	05/28/2024 1456
11Cl-PF3OUdS	ND		1	8.0	0.66	ng/L	05/28/2024 1456
8:2 FTS	ND		1	8.0	1.6	ng/L	05/28/2024 1456
6:2 FTS	ND		1	8.0	2.0	ng/L	05/28/2024 1456
4:2 FTS	ND		1	8.0	0.87	ng/L	05/28/2024 1456
GenX	ND		1	8.0	2.1	ng/L	05/28/2024 1456
ADONA	ND		1	8.0	0.48	ng/L	05/28/2024 1456
EtFOSAA	ND		1	8.0	0.75	ng/L	05/28/2024 1456
MeFOSAA	ND		1	8.0	0.93	ng/L	05/28/2024 1456
PFBS	ND		1	4.0	0.41	ng/L	05/28/2024 1456
PFDS	ND		1	4.0	0.78	ng/L	05/28/2024 1456
PFHpS	ND		1	4.0	0.50	ng/L	05/28/2024 1456
PFNS	ND		1	4.0	0.71	ng/L	05/28/2024 1456
PFOSA	ND		1	4.0	0.61	ng/L	05/28/2024 1456
PFPeS	ND		1	4.0	0.59	ng/L	05/28/2024 1456
PFHxS	ND		1	4.0	0.55	ng/L	05/28/2024 1456
PFBA	ND		1	4.0	0.60	ng/L	05/28/2024 1456
PFDA	ND		1	4.0	0.52	ng/L	05/28/2024 1456
PFDoA	ND		1	4.0	0.47	ng/L	05/28/2024 1456
PFHpA	ND		1	4.0	0.45	ng/L	05/28/2024 1456
PFHxA	ND		1	4.0	0.69	ng/L	05/28/2024 1456
PFNA	ND		1	4.0	0.46	ng/L	05/28/2024 1456
PFOA	ND		1	4.0	0.83	ng/L	05/28/2024 1456
PFPeA	ND		1	4.0	0.54	ng/L	05/28/2024 1456
PFTeDA	ND		1	4.0	0.60	ng/L	05/28/2024 1456
PFTrDA	ND		1	4.0	0.53	ng/L	05/28/2024 1456
PFUdA	ND		1	4.0	0.63	ng/L	05/28/2024 1456
PFOS	ND		1	4.0	2.0	ng/L	05/28/2024 1456

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		101	25-150
13C2_6:2FTS		120	25-150
13C2_8:2FTS		98	25-150
13C2_PFDoA		96	25-150
13C2_PFTeDA		95	25-150
13C3_PFBS		95	25-150
13C3_PFHxS		104	25-150
13C3-HFPO-DA		104	25-150
13C4_PFBA		96	25-150
13C4_PFHpA		101	25-150
13C5_PFHxA		110	25-150
13C5_PFPeA		102	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: ZQ12164-001
Batch: 12164
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 05/24/2024 1053

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		99	25-150
13C7_PFUdA		103	25-150
13C8_PFOA		106	25-150
13C8_PFOS		101	25-150
13C8_PFOSA		99	10-150
13C9_PFNA		107	25-150
d5-EtFOSAA		98	25-150
d3-MeFOSAA		103	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ12164-002
Batch: 12164
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 05/24/2024 1053

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	13		1	88	50-150	05/28/2024 1507
11Cl-PF3OUdS	15	13		1	88	50-150	05/28/2024 1507
8:2 FTS	15	14		1	91	50-150	05/28/2024 1507
6:2 FTS	15	14		1	94	50-150	05/28/2024 1507
4:2 FTS	15	16		1	110	50-150	05/28/2024 1507
GenX	32	31		1	96	50-150	05/28/2024 1507
ADONA	15	17		1	113	50-150	05/28/2024 1507
EtFOSAA	16	17		1	105	50-150	05/28/2024 1507
MeFOSAA	16	14		1	88	50-150	05/28/2024 1507
PFBS	14	14		1	102	50-150	05/28/2024 1507
PFDS	15	14		1	89	50-150	05/28/2024 1507
PFHpS	15	17		1	111	50-150	05/28/2024 1507
PFNS	15	13		1	86	50-150	05/28/2024 1507
PFOSA	16	16		1	101	50-150	05/28/2024 1507
PFPeS	15	16		1	104	50-150	05/28/2024 1507
PFHxS	15	15		1	102	50-150	05/28/2024 1507
PFBA	16	16		1	99	50-150	05/28/2024 1507
PFDA	16	16		1	102	50-150	05/28/2024 1507
PFDoA	16	16		1	100	50-150	05/28/2024 1507
PFHpA	16	16		1	100	50-150	05/28/2024 1507
PFHxA	16	16		1	100	50-150	05/28/2024 1507
PFNA	16	13		1	81	50-150	05/28/2024 1507
PFOA	16	15		1	91	50-150	05/28/2024 1507
PFPeA	16	15		1	96	50-150	05/28/2024 1507
PFTeDA	16	15		1	96	50-150	05/28/2024 1507
PFTrDA	16	15		1	97	50-150	05/28/2024 1507
PFUdA	16	17		1	105	50-150	05/28/2024 1507
PFOS	15	14		1	94	50-150	05/28/2024 1507

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		101	25-150
13C2_6:2FTS		123	25-150
13C2_8:2FTS		108	25-150
13C2_PFDoA		104	25-150
13C2_PFTeDA		99	25-150
13C3_PFBS		107	25-150
13C3_PFHxS		109	25-150
13C3-HFPO-DA		108	25-150
13C4_PFBA		103	25-150
13C4_PFHpA		107	25-150
13C5_PFHxA		120	25-150
13C5_PFPeA		104	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ12164-002
Batch: 12164
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 05/24/2024 1053

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		104	25-150
13C7_PFUdA		104	25-150
13C8_PFOA		113	25-150
13C8_PFOS		107	25-150
13C8_PFOSA		105	10-150
13C9_PFNA		122	25-150
d5-EtFOSAA		110	25-150
d3-MeFOSAA		106	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID: ZE20006-005MS
Batch: 12164
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 05/24/2024 1053

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	ND	13	12		1	91	50-150	05/28/2024 1653
11Cl-PF3OUdS	ND	13	12		1	89	50-150	05/28/2024 1653
8:2 FTS	ND	13	14		1	108	50-150	05/28/2024 1653
6:2 FTS	ND	13	11		1	87	50-150	05/28/2024 1653
4:2 FTS	ND	13	13		1	103	50-150	05/28/2024 1653
GenX	ND	28	29		1	104	50-150	05/28/2024 1653
ADONA	ND	13	13		1	97	50-150	05/28/2024 1653
EtFOSAA	ND	14	13		1	98	50-150	05/28/2024 1653
MeFOSAA	ND	14	13		1	95	50-150	05/28/2024 1653
PFBS	ND	12	12		1	96	50-150	05/28/2024 1653
PFDS	ND	13	12		1	90	50-150	05/28/2024 1653
PFHpS	ND	13	12		1	93	50-150	05/28/2024 1653
PFNS	ND	13	12		1	88	50-150	05/28/2024 1653
PFOSA	ND	14	13		1	97	50-150	05/28/2024 1653
PFPeS	ND	13	13		1	100	50-150	05/28/2024 1653
PFHxS	ND	13	12		1	94	50-150	05/28/2024 1653
PFBA	8.1	14	21		1	97	50-150	05/28/2024 1653
PFDA	ND	14	13		1	98	50-150	05/28/2024 1653
PFDoA	ND	14	15		1	112	50-150	05/28/2024 1653
PFHpA	2.8	14	17		1	107	50-150	05/28/2024 1653
PFHxA	6.2	14	19		1	90	50-150	05/28/2024 1653
PFNA	ND	14	13		1	95	50-150	05/28/2024 1653
PFOA	0.70	14	14		1	104	50-150	05/28/2024 1653
PFPeA	9.6	14	22		1	90	50-150	05/28/2024 1653
PFTeDA	ND	14	14		1	105	50-150	05/28/2024 1653
PFTrDA	ND	14	15		1	108	50-150	05/28/2024 1653
PFUdA	ND	14	15		1	109	50-150	05/28/2024 1653
PFOS	ND	13	12		1	93	50-150	05/28/2024 1653

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS	N	204	25-150
13C2_6:2FTS	N	180	25-150
13C2_8:2FTS		103	25-150
13C2_PFDoA		86	25-150
13C2_PFTeDA		93	25-150
13C3_PFBS		103	25-150
13C3_PFHxS		114	25-150
13C3-HFPO-DA		95	25-150
13C4_PFBA		55	25-150
13C4_PFHpA		98	25-150
13C5_PFHxA		113	25-150
13C5_PFPeA		89	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID: ZE20006-005MS
Batch: 12164
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 05/24/2024 1053

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		100	25-150
13C7_PFUdA		91	25-150
13C8_PFOA		114	25-150
13C8_PFOS		99	25-150
13C8_PFOSA		101	10-150
13C9_PFNA		108	25-150
d5-EtFOSAA		99	25-150
d3-MeFOSAA		99	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - Duplicate

Sample ID: ZE20006-012DU
Batch: 12164
Analytical Method: PFAS by ID SOP
Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 05/24/2024 1053

Parameter	Sample Amount (ng/L)	Result (ng/L)	Q	Dil	% RPD	%RPD Limit	Analysis Date
9Cl-PF3ONS	ND	ND		1	0.00	20	05/28/2024 1839
11Cl-PF3OUdS	ND	ND		1	0.00	20	05/28/2024 1839
8:2 FTS	ND	ND		1	0.00	20	05/28/2024 1839
6:2 FTS	ND	ND		1	0.00	20	05/28/2024 1839
4:2 FTS	ND	ND		1	0.00	20	05/28/2024 1839
GenX	ND	ND		1	0.00	20	05/28/2024 1839
ADONA	ND	ND		1	0.00	20	05/28/2024 1839
EtFOSAA	ND	ND		1	0.00	20	05/28/2024 1839
MeFOSAA	ND	ND		1	0.00	20	05/28/2024 1839
PFBS	ND	3.0		1	200	20	05/28/2024 1839
PFDS	ND	ND		1	0.00	20	05/28/2024 1839
PFHpS	ND	0.70	J,+	1	41	20	05/28/2024 1839
PFNS	ND	ND		1	0.00	20	05/28/2024 1839
PFOSA	ND	ND		1	0.00	20	05/28/2024 1839
PFPeS	ND	ND		1	0.00	20	05/28/2024 1839
PFHxS	7.0	6.0		1	16	20	05/28/2024 1839
PFBA	24	22		1	5.9	20	05/28/2024 1839
PFDA	1.1	1.1	J	1	1.7	20	05/28/2024 1839
PFDoA	ND	ND		1	0.00	20	05/28/2024 1839
PFHpA	13	15		1	12	20	05/28/2024 1839
PFHxA	20	24		1	18	20	05/28/2024 1839
PFNA	4.8	4.9		1	2.6	20	05/28/2024 1839
PFOA	29	35		1	18	20	05/28/2024 1839
PFPeA	15	15		1	2.0	20	05/28/2024 1839
PFTeDA	ND	ND		1	0.00	20	05/28/2024 1839
PFTrDA	ND	ND		1	0.00	20	05/28/2024 1839
PFUdA	ND	ND		1	0.00	20	05/28/2024 1839
PFOS	50	45		1	12	20	05/28/2024 1839

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS	N	262	25-150
13C2_6:2FTS	N	268	25-150
13C2_8:2FTS	N	220	25-150
13C2_PFDoA		103	25-150
13C2_PFTeDA		93	25-150
13C3_PFBS		89	25-150
13C3_PFHxS		108	25-150
13C3-HFPO-DA		76	25-150
13C4_PFBA		46	25-150
13C4_PFHpA		87	25-150
13C5_PFHxA		88	25-150
13C5_PFPeA		72	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - Duplicate

Sample ID: ZE20006-012DU
Batch: 12164
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 05/24/2024 1053

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		113	25-150
13C7_PFUdA		105	25-150
13C8_PFOA		92	25-150
13C8_PFOS		75	25-150
13C8_PFOSA		94	10-150
13C9_PFNA		52	25-150
d5-EtFOSAA		138	25-150
d3-MeFOSAA		122	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: ZQ12319-001
Batch: 12319
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 05/29/2024 1329

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
9Cl-PF3ONS	ND		1	8.0	0.48	ng/L	05/30/2024 1350
11Cl-PF3OUdS	ND		1	8.0	0.66	ng/L	05/30/2024 1350
8:2 FTS	ND		1	8.0	1.6	ng/L	05/30/2024 1350
6:2 FTS	ND		1	8.0	2.0	ng/L	05/30/2024 1350
4:2 FTS	ND		1	8.0	0.87	ng/L	05/30/2024 1350
GenX	ND		1	8.0	2.1	ng/L	05/30/2024 1350
ADONA	ND		1	8.0	0.48	ng/L	05/30/2024 1350
EtFOSAA	ND		1	8.0	0.75	ng/L	05/30/2024 1350
MeFOSAA	ND		1	8.0	0.93	ng/L	05/30/2024 1350
PFBS	ND		1	4.0	0.41	ng/L	05/30/2024 1350
PFDS	ND		1	4.0	0.78	ng/L	05/30/2024 1350
PFHpS	ND		1	4.0	0.50	ng/L	05/30/2024 1350
PFNS	ND		1	4.0	0.71	ng/L	05/30/2024 1350
PFOSA	ND		1	4.0	0.61	ng/L	05/30/2024 1350
PFPeS	ND		1	4.0	0.59	ng/L	05/30/2024 1350
PFHxS	ND		1	4.0	0.55	ng/L	05/30/2024 1350
PFBA	ND		1	4.0	0.60	ng/L	05/30/2024 1350
PFDA	ND		1	4.0	0.52	ng/L	05/30/2024 1350
PFDoA	ND		1	4.0	0.47	ng/L	05/30/2024 1350
PFHpA	ND		1	4.0	0.45	ng/L	05/30/2024 1350
PFHxA	ND		1	4.0	0.69	ng/L	05/30/2024 1350
PFNA	ND		1	4.0	0.46	ng/L	05/30/2024 1350
PFOA	ND		1	4.0	0.83	ng/L	05/30/2024 1350
PFPeA	ND		1	4.0	0.54	ng/L	05/30/2024 1350
PFTeDA	ND		1	4.0	0.60	ng/L	05/30/2024 1350
PFTrDA	ND		1	4.0	0.53	ng/L	05/30/2024 1350
PFUdA	ND		1	4.0	0.63	ng/L	05/30/2024 1350
PFOS	ND		1	4.0	2.0	ng/L	05/30/2024 1350

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		97	25-150
13C2_6:2FTS		118	25-150
13C2_8:2FTS		102	25-150
13C2_PFDoA		101	25-150
13C2_PFTeDA		97	25-150
13C3_PFBS		92	25-150
13C3_PFHxS		106	25-150
13C3-HFPO-DA		98	25-150
13C4_PFBA		99	25-150
13C4_PFHpA		98	25-150
13C5_PFHxA		105	25-150
13C5_PFPeA		109	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: ZQ12319-001
Batch: 12319
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 05/29/2024 1329

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		97	25-150
13C7_PFUdA		106	25-150
13C8_PFOA		100	25-150
13C8_PFOS		109	25-150
13C8_PFOSA		94	10-150
13C9_PFNA		99	25-150
d5-EtFOSAA		101	25-150
d3-MeFOSAA		107	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ12319-002
Batch: 12319
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 05/29/2024 1329

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	13		1	87	50-150	05/30/2024 1401
11Cl-PF3OUdS	15	12		1	83	50-150	05/30/2024 1401
8:2 FTS	15	17		1	111	50-150	05/30/2024 1401
6:2 FTS	15	13		1	83	50-150	05/30/2024 1401
4:2 FTS	15	18		1	119	50-150	05/30/2024 1401
GenX	32	29		1	91	50-150	05/30/2024 1401
ADONA	15	13		1	88	50-150	05/30/2024 1401
EtFOSAA	16	16		1	102	50-150	05/30/2024 1401
MeFOSAA	16	15		1	92	50-150	05/30/2024 1401
PFBS	14	14		1	100	50-150	05/30/2024 1401
PFDS	15	14		1	88	50-150	05/30/2024 1401
PFHpS	15	15		1	96	50-150	05/30/2024 1401
PFNS	15	13		1	85	50-150	05/30/2024 1401
PFOSA	16	17		1	104	50-150	05/30/2024 1401
PFPeS	15	14		1	95	50-150	05/30/2024 1401
PFHxS	15	13		1	88	50-150	05/30/2024 1401
PFBA	16	16		1	100	50-150	05/30/2024 1401
PFDA	16	14		1	89	50-150	05/30/2024 1401
PFDoA	16	16		1	100	50-150	05/30/2024 1401
PFHpA	16	16		1	98	50-150	05/30/2024 1401
PFHxA	16	17		1	103	50-150	05/30/2024 1401
PFNA	16	13		1	82	50-150	05/30/2024 1401
PFOA	16	15		1	96	50-150	05/30/2024 1401
PFPeA	16	16		1	103	50-150	05/30/2024 1401
PFTeDA	16	15		1	95	50-150	05/30/2024 1401
PFTrDA	16	16		1	99	50-150	05/30/2024 1401
PFUdA	16	17		1	104	50-150	05/30/2024 1401
PFOS	15	14		1	96	50-150	05/30/2024 1401

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		85	25-150
13C2_6:2FTS		134	25-150
13C2_8:2FTS		90	25-150
13C2_PFDoA		97	25-150
13C2_PFTeDA		99	25-150
13C3_PFBS		103	25-150
13C3_PFHxS		110	25-150
13C3-HFPO-DA		104	25-150
13C4_PFBA		97	25-150
13C4_PFHpA		104	25-150
13C5_PFHxA		107	25-150
13C5_PFPeA		102	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ12319-002
Batch: 12319
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 05/29/2024 1329

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		112	25-150
13C7_PFUdA		110	25-150
13C8_PFOA		115	25-150
13C8_PFOS		109	25-150
13C8_PFOSA		95	10-150
13C9_PFNA		112	25-150
d5-EtFOSAA		108	25-150
d3-MeFOSAA		104	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID: ZE20006-016MS
Batch: 12319
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 05/29/2024 1329

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	ND	14	12		1	83	50-150	05/30/2024 1515
11Cl-PF3OUdS	ND	14	11		1	77	50-150	05/30/2024 1515
8:2 FTS	ND	15	16		1	110	50-150	05/30/2024 1515
6:2 FTS	ND	14	13		1	91	50-150	05/30/2024 1515
4:2 FTS	ND	14	14		1	96	50-150	05/30/2024 1515
GenX	ND	30	28		1	93	50-150	05/30/2024 1515
ADONA	ND	14	11		1	75	50-150	05/30/2024 1515
EtFOSAA	ND	15	14		1	93	50-150	05/30/2024 1515
MeFOSAA	ND	15	15		1	100	50-150	05/30/2024 1515
PFBS	5.0	13	15		1	76	50-150	05/30/2024 1515
PFDS	ND	15	13		1	90	50-150	05/30/2024 1515
PFHpS	ND	15	16		1	109	50-150	05/30/2024 1515
PFNS	ND	15	12		1	85	50-150	05/30/2024 1515
PFOSA	ND	15	14		1	90	50-150	05/30/2024 1515
PFPeS	ND	14	16		1	109	50-150	05/30/2024 1515
PFHxS	3.7	14	16		1	86	50-150	05/30/2024 1515
PFBA	12	15	27		1	100	50-150	05/30/2024 1515
PFDA	2.0	15	16		1	92	50-150	05/30/2024 1515
PFDoA	ND	15	15		1	101	50-150	05/30/2024 1515
PFHpA	10	15	26		1	102	50-150	05/30/2024 1515
PFHxA	10	15	26		1	102	50-150	05/30/2024 1515
PFNA	2.4	15	18		1	102	50-150	05/30/2024 1515
PFOA	19	15	35		1	106	50-150	05/30/2024 1515
PFPeA	13	15	27		1	97	50-150	05/30/2024 1515
PFTeDA	ND	15	16		1	102	50-150	05/30/2024 1515
PFTrDA	ND	15	14		1	91	50-150	05/30/2024 1515
PFUdA	ND	15	15		1	99	50-150	05/30/2024 1515
PFOS	24	14	35		1	82	50-150	05/30/2024 1515

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS	N	238	25-150
13C2_6:2FTS	N	310	25-150
13C2_8:2FTS	N	224	25-150
13C2_PFDoA		113	25-150
13C2_PFTeDA		103	25-150
13C3_PFBS		80	25-150
13C3_PFHxS		97	25-150
13C3-HFPO-DA		73	25-150
13C4_PFBA		42	25-150
13C4_PFHpA		69	25-150
13C5_PFHxA		82	25-150
13C5_PFPeA		60	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID: ZE20006-016MS
Batch: 12319
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 05/29/2024 1329

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		120	25-150
13C7_PFUdA		133	25-150
13C8_PFOA		100	25-150
13C8_PFOS		102	25-150
13C8_PFOSA		94	10-150
13C9_PFNA		101	25-150
d5-EtFOSAA		147	25-150
d3-MeFOSAA		126	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MSD

Sample ID: ZE20006-016MD
Batch: 12319
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 05/29/2024 1329

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
9Cl-PF3ONS	ND	14	12		1	84	1.4	50-150	30	05/30/2024 1526
11Cl-PF3OUdS	ND	14	11		1	78	1.2	50-150	30	05/30/2024 1526
8:2 FTS	ND	15	14		1	94	15	50-150	30	05/30/2024 1526
6:2 FTS	ND	15	15		1	106	16	50-150	30	05/30/2024 1526
4:2 FTS	ND	14	12		1	85	11	50-150	30	05/30/2024 1526
GenX	ND	31	31		1	100	8.0	50-150	30	05/30/2024 1526
ADONA	ND	14	11		1	76	1.5	50-150	30	05/30/2024 1526
EtFOSAA	ND	15	14		1	92	1.4	50-150	30	05/30/2024 1526
MeFOSAA	ND	15	12		1	81	20	50-150	30	05/30/2024 1526
PFBS	5.0	14	16		1	84	6.4	50-150	30	05/30/2024 1526
PFDS	ND	15	12		1	83	8.0	50-150	30	05/30/2024 1526
PFHpS	ND	15	15		1	101	7.6	50-150	30	05/30/2024 1526
PFNS	ND	15	11		1	76	11	50-150	30	05/30/2024 1526
PFOSA	ND	15	15		1	97	8.3	50-150	30	05/30/2024 1526
PFPeS	ND	14	14		1	101	7.6	50-150	30	05/30/2024 1526
PFHxS	3.7	14	16		1	88	2.1	50-150	30	05/30/2024 1526
PFBA	12	15	25		1	91	5.4	50-150	30	05/30/2024 1526
PFDA	2.0	15	17		1	100	7.0	50-150	30	05/30/2024 1526
PFDoA	ND	15	13		1	84	18	50-150	30	05/30/2024 1526
PFHpA	10	15	26		1	103	1.3	50-150	30	05/30/2024 1526
PFHxA	10	15	28		1	117	8.5	50-150	30	05/30/2024 1526
PFNA	2.4	15	16		1	87	14	50-150	30	05/30/2024 1526
PFOA	19	15	34		1	97	3.7	50-150	30	05/30/2024 1526
PFPeA	13	15	26		1	87	5.2	50-150	30	05/30/2024 1526
PFTeDA	ND	15	15		1	98	4.0	50-150	30	05/30/2024 1526
PFTrDA	ND	15	14		1	90	1.5	50-150	30	05/30/2024 1526
PFUdA	ND	15	16		1	107	8.3	50-150	30	05/30/2024 1526
PFOS	24	14	38		1	101	7.6	50-150	30	05/30/2024 1526

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS	N	254	25-150
13C2_6:2FTS	N	275	25-150
13C2_8:2FTS	N	252	25-150
13C2_PFDoA		114	25-150
13C2_PFTeDA		100	25-150
13C3_PFBS		82	25-150
13C3_PFHxS		98	25-150
13C3-HFPO-DA		74	25-150
13C4_PFBA		43	25-150
13C4_PFHpA		70	25-150
13C5_PFHxA		78	25-150
13C5_PFPeA		63	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MSD

Sample ID: ZE20006-016MD
Batch: 12319
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 05/29/2024 1329

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		113	25-150
13C7_PFUdA		109	25-150
13C8_PFOA		104	25-150
13C8_PFOS		102	25-150
13C8_PFOSA		94	10-150
13C9_PFNA		104	25-150
d5-EtFOSAA		138	25-150
d3-MeFOSAA		128	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Chain of Custody
and
Miscellaneous Documents

Plant 2

Pace Analytical® **Chain of Custody Record**

Pace Analytical Services, LLC.
106 Vantage Point Drive
West Columbia, South Carolina 29172
Telephone No. (803) 791-9700 Fax No. (803) 791-9111
www.pacelabs.com

Number

Client	Report to Contact	Telephone No. / E-mail	Quote No.
Arcadis	Tiffany Linder, Kaitlyn Hunt	(248)809-4013/ kaitlyn.hunt@arcadis.com	

Address	Sampler's Signature	Analysis (Attach list if more space is needed)	Page 2
28550 Cabot Drive, Suite 500	x [signature]		

City	State	Zip Code	Printed Name
Novi	MI	48377	Austin Westhuis

Project Name: RACER Lansing GWS

Project Number: 30214036.0370A

P.O. No.: US3460016163

ZE20006

KAS2

Sample ID / Description (Containers for each sample may be combined on one line)	Collection Date(s)	Collection Time (military)	G=Grab C=Composite	Matrix: Aqueous	Matrix: Solid	Matrix: Non-Aqueous	Matrix:	No of Containers by Preservative Type: Unpres.	H2SO4	HNO3	HCl	NaOH	5035 Kit	Field Filtered	PFAS (Method 537M, EGLE 28 compounds)							Remarks / Cooler I.D.
MW-14-61_051524	5/15/24	1035	G	X				2							2							
MW-15-72_051524	5/15/24	1215	G	X				2							2							
DUP-02_051524	5/15/24	—	G	X				2							2							
EB-02_051524	5/15/24	1415	G	X				2							2							
MW-16-81_051524	5/15/24	1340	G	X				2							2							

Turn Around Time Required (Prior lab approval required for expedited TAT)	Sample Disposal	Possible Hazard Identification (List any known hazards in the remarks)	QC Requirements
☑ Standard ☐ Rush (Please Specify)	☐ Return to Client ☑ Disposal by Lab	☐ Non-Hazardous ☐ Flammable ☐ Skin Irritant ☐ SDS provided ☐ Unknown	

	Date	Time		Date	Time
1. Relinquished by	5-17-24	1345	1. Received by		
2. Relinquished by			2. Received by		
3. Relinquished by			3. Received by		
4. Relinquished by Fisher	5/19/24	0909	4. Laboratory Received by	5/18/24	0909

Note: All samples are retained for four weeks from receipt unless other arrangements are made

LAB USE ONLY
Received on Ice (Check) ☑ Y ☐ N ☐ Ice Pack

Receipt Temp. (✓) °C

Temp. Blank ☐ Y ☐ N

PACE ANALYTICAL SERVICES, LLC

PLAN 7 -2

Pace Analytical™ **Chain of Custody Record**

Pace Analytical Services, LLC.
106 Vantage Point Drive
West Columbia, South Carolina 29172
Telephone No. (803) 791-9700 Fax No. (803) 791-9111
www.pacelabs.com

Number

Client: Arcadis	Report to Contact: Tiffany Linder, Kaitlyn Hunt	Telephone No. / E-mail: (248)809-4013/ kaitlyn.hunt@arcadis.com	Quote No.
Address: 28550 Cabot Drive, Suite 500	Sampler's Signature: X	Analysis (Attach list if more space is needed)	Page 2 of 3
City: Novi / State: MI / Zip Code: 48377	Printed Name		
Project Name: RACER Lansing GWS			
Project Number: 30214036.0370A	P.O. No.: US3460016153		

ZE20006

KBS2

Sample ID / Description (Containers for each sample may be combined on one line)	Collection Date(s)	Collection Time (military)	G=Grab C=Composite	Matrix: Air/Gas	Solid	Non-Aqueous	No of Containers by Preservative Type: Unpres.	H2SO4	HNO3	HCl	NaOH	5035 Kit	Field Filtered	PFAS (Method 537M, EGLE 28 compounds)	Remarks / Cooler I.D.
EB-01_051424	5/14/24	1622	G	X			2							2	
EB-03_051524	5/14/24	1645	G	X			2							2	
MW-14-62_051524	5/15/24	1740	G	X			2							2	
MW-12-09_051624	5/16/24	1055	G	X			2							2	
MW-12-18_051624	5/16/24	1240	G	X			2							2	
MW-14-59_051724	5/17/24	0945	G	X			2							2	
MW-14-60_051724	5/17/24	1140	G	X			2							2	
EXP-01_051624	5/16/24		G	X			2							2	

Turn Around Time Required (Prior lab approval required for expedited TAT): ☑ Standard ☐ Rush (Please Specify)

Sample Disposal: ☐ Return to Client ☑ Disposal by Lab

Possible Hazard Identification (List any known hazards in the remarks): ☐ Non-Hazardous ☐ Flammable ☐ Skin Irritant ☐ SDS provided ☐ Unknown

QC Requirements

	Date	Time		Date	Time
1. Relinquished by	5/17/24	1230	1. Received by	5/17/24	1232
2. Relinquished by	5/17/24	1345	2. Received by	Date	Time
3. Relinquished by	Date	Time	3. Received by	Date	Time
4. Relinquished by: Fedex	5/18/24	0904	4. Laboratory Received by	5/18/24	0904

Note: All samples are retained for four weeks from receipt unless other arrangements are made

LAB USE ONLY
Received on Ice (Check) ☑ Y ☐ N ☐ Ice Pack

Receipt Temp. 1.7 °C

Temp. Blank ☐ Y / ☑ N

PACE ANALYTICAL SERVICES, LLC

Plant 2

Pace Analytical® **Chain of Custody Record**

Pace Analytical Services, LLC.
106 Vantage Point Drive
West Columbia, South Carolina 29172
Telephone No. (803) 791-9700 Fax No. (803) 791-9111
www.pacelabs.com

Number

| | | |

DC#_Title: ENV-FRM-WCOL-0286 v02_Samples Receipt Checklist (SRC)
Effective Date: 8/2/2022

Sample Receipt Checklist (SRC)

Client: ARCADIS Cooler Inspected by/date: SCT 5/29/24 Lot #: ZE20006

Means of receipt: ☐ Pace ☐ Client ☐ UPS ☑ FedEx ☐ Other:

☐ Yes	☒ No		1. Were custody seals present on the cooler?
☐ Yes	☐ No	☒ NA	2. If custody seals were present, were they intact and unbroken?

pH Strip ID: NA Chlorine Strip ID: NA Tested by:
Original temperature upon receipt / Derived (Corrected) temperature upon receipt %Solid Snap-Cup ID:
1.1 / 1.1 °C NA / NA °C NA / NA °C NA / NA °C
Method: ☐ Temperature Blank ☒ Against Bottles IR Gun ID: 8 IR Gun Correction Factor: 0 °C
Method of coolant: ☒ Wet Ice ☐ Ice Packs ☐ Dry Ice ☐ None

☒ Yes	☐ No	☐ NA	3. Were all coolers received at or below 6.0°C? If no, was Project Manager notified? PM was Notified by: phone / email / face-to-face (circle one).
☐ Yes	☒ No	☒ NA	4. Is the commercial courier's packing slip attached to this form?
☒ Yes	☐ No	SCT 5/29/24	5. Were proper custody procedures (relinquished/received) followed?
☒ Yes	☐ No		6. Were sample IDs listed on the COC and all sample containers?
☒ Yes	☐ No		7. Was collection date & time listed on the COC and all sample containers?
☒ Yes	☐ No		8. Did all container label information (ID, date, time) agree with the COC?
☒ Yes	☐ No		9. Were tests to be performed listed on the COC?
☒ Yes	☐ No		10. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)?
☒ Yes	☐ No		11. Was adequate sample volume available?
☐ Yes	☒ No		12. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
☒ Yes	☐ No		13. Were all samples containers accounted for? (No missing/excess)
☐ Yes	☐ No	☒ NA	14. Were VOA, 8015C and RSK-175 samples free of bubbles >"pea-size" (¼"or 6mm in diameter) in any of the VOA vials?
☐ Yes	☐ No	☒ NA	15. Were all DRO/metals/nutrient samples received at a pH of < 2?
☐ Yes	☐ No	☒ NA	16. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
☐ Yes	☐ No	☒ NA	17. Were all applicable NH_3/TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?
☒ Yes	☐ No	☐ NA	18. Was the quote number listed on the container label? If yes, Quote # 25229

Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)

Sample(s) NA were received incorrectly preserved and were adjusted accordingly in sample receiving with NA mL of circle one: H2SO4, HNO3, HCl, NaOH using SR # NA. ☐
Time of preservation NA. If more than one preservative is needed, please note in the comments below.

Sample(s) NA were received with bubbles >6 mm in diameter.

Samples(s) NA were received with TRC > 0.5 mg/L (If #19 is *no*) and were adjusted accordingly in sample receiving with sodium thiosulfate ($Na_2S_2O_3$) with Unique ID: NA

Comments:

Report of Analysis

Arcadis U.S., Inc.
630 Plaza Drive
Suite 600
Highlands Ranch, CO 80129
Attention: Tiffany Linder

Project Name: RACER Lansing GWS

Project Number: 30214036.0370A

Lot Number:**ZE23018**

Date Completed:06/20/2024

06/24/2024 10:53 AM
Approved and released by:
Project Manager II: **Kathy E. Smith**





The electronic signature above is the equivalent of a handwritten signature.
This report shall not be reproduced, except in its entirety, without the written approval of Pace Analytical Services, LLC.

Case Narrative
Arcadis U.S., Inc.
Lot Number: ZE23018

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.
Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved The NELAC Institute (TNI) standards, the Pace Analytical Services, LLC ("Pace") Laboratory Quality Manual, standard operating procedures (SOPs), and Pace policies. Additionally, the DoD QSM version 5.4 has been followed for these samples, and specifically Table B-15 was followed for all PFAS samples. Any exceptions to the TNI standards, the Laboratory Quality Manual, SOPs, the DoD QSM, or policies are qualified on the results page or discussed below.

All QC associated with these samples were compliant with DOD QSM 5.4 table B-15 and our PFAS SOP. Correction factors (CF) are used to calculate the original sample concentration. The CF is the inverse of the concentration factor (sample volume / extract final volume) times the dilution factor (DF). The CF is calculated as follows:

CF = DF * FV / Vo
FV is volume of extract (mL)
Vo is initial sample volume (mL)
DF is dilution factor. For undiluted analysis, DF = 1.

Sample concentration for aqueous samples:
Concentration (ng/L) = Cs*CF,

$$C_s = \frac{\left(\frac{(A_s x C_{is})}{A_{is}}\right) - B}{M1}$$

Where

C_s is on column concentration of target analyte in the sample (ng/L)
C_{is} is concentration of internal standard in the sample (ng/L)
A_s is peak response of target analyte in the sample
A_{is} is peak response of internal standard in the sample
M1 is the average RF from ICAL or the slope from linear regression ICAL
B is the y-intercept from the ICAL

Pace is a TNI accredited laboratory; however, the following analyses are currently not listed on our TNI scope of accreditation: E. coli and Total coliforms SM 9223 B-2004, Solid Chemical Material: TOC Walkley-Black, Biological Tissue: All, Non-Potable Water: SGT-HEM EPA 1664B, Silica EPA 200.7, Boron, Calcium, Silicon, Strontium EPA 200.8, Bicarbonate, Carbonate, and Hydroxide Alkalinity SM 2320 B-2011, SM 9221 C E-2006 & SM 9222D-2006, Strontium SW-846 6010D, VOC SM 6200 B-2011, Fecal Coliform Colilert-18. If you have any questions regarding this report, please contact the Pace Project Manager listed on the cover page.

Manual integration summaries are provided at the end of this report when applicable.

PFAS
Samples ZE23018-001, ZE23018-002, ZE23018-004, ZE23018-008, ZE23018-011, ZE23018-012, ZE23018-013, ZE23018-014, ZE23018-015, ZE23018-016, ZE23018-026 required centrifugation prior to extraction, due to excessive solids present in the samples. Centrifugation was performed following the PFAS Aqueous Centrifuge Protocol; samples were spiked with Surrogate (SUR; Extracted Internal Standard/EIS) and shaken vigorously before being poured into a conical bottle and centrifuged. The centrifuged aqueous sample was decanted back into the original sample bottle, off of the condensed solids remaining in the centrifuge bottle. Original sample bottle was rinsed as normal and centrifuge bottle was rinsed with 4mL of MeOH. Centrifuge bottle rinsate was added to the elution. Samples concentrated to <5mL and reconstituted to 5mL using MeOH by transfer pipet.

The following sample was diluted due to the nature of the sample matrix: ZE23018-025. The LOQ has been elevated to reflect the dilution. Sample was diluted because it was dark in color and foamy.,

Surrogate recovery for the following samples was outside the upper control limit: ZE23018-001, ZE23018-002, ZE23018-003, ZE23018-004, ZE23018-005, ZE23018-006, ZE23018-007, ZE23018-008, ZE23018-009, ZE23018-010, ZE23018-012, ZE23018-013, ZE23018-015, ZE23018-016, ZE23018-017, ZE23018-018, ZE23018-019, ZE23018-020, ZE23018-021, ZE23018-023, ZE23018-024, ZE23018-025, ZE23018-026, ZE23018-027, ZE23018-028, ZE23018-030, ZE23018-031, ZE23018-032, ZE23018-033, ZE23018-034. These samples did not contain any target analytes; therefore, the data has been reported.

Sample ZE23018-018 was extracted with a matrix spike (MS) and matrix spike duplicate (MSD). Sample required a 50x dilution which diluted some target analytes out in the MS and MSD.

Surrogate recovery for the following sample was outside control limits: ZE23018-022. Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Surrogate recovery for the following sample was outside control limits: ZE23018-029. Re-extraction and/or re-analysis was performed with concurring results. The data has been reported.

Sample Summary

Arcadis U.S., Inc.

Lot Number: ZE23018

Project Name: RACER Lansing GWS

Project Number: 30214036.0370A

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	MW-18-93_052124	Aqueous	05/21/2024 1005	05/23/2024
002	DUP-08_052124	Aqueous	05/21/2024	05/23/2024
003	EB-07_052124	Aqueous	05/21/2024 0905	05/23/2024
004	MW-18-91_052124	Aqueous	05/21/2024 1115	05/23/2024
005	MW-19-111_052124	Aqueous	05/21/2024 1245	05/23/2024
006	MW-19-108_052124	Aqueous	05/21/2024 1405	05/23/2024
007	MW-18-92_052124	Aqueous	05/21/2024 1500	05/23/2024
008	MW-19-107_052124	Aqueous	05/21/2024 1550	05/23/2024
009	EB-06_052124	Aqueous	05/21/2024 1815	05/23/2024
010	UNK-15_052124	Aqueous	05/21/2024 1700	05/23/2024
011	MW-02-04(3)_052124	Aqueous	05/21/2024 1100	05/23/2024
012	MW-18-94_052124	Aqueous	05/21/2024 1425	05/23/2024
013	MW-18-97_052124	Aqueous	05/21/2024 1240	05/23/2024
014	MW-18-101_052124	Aqueous	05/21/2024 1550	05/23/2024
015	MW-23_052124	Aqueous	05/21/2024 1715	05/23/2024
016	MW-91-2R_052224	Aqueous	05/22/2024 0935	05/23/2024
017	DUP-09_052224	Aqueous	05/22/2024	05/23/2024
018	CH-14-RO_052224	Aqueous	05/22/2024 1040	05/23/2024
019	MW-18-88_052224	Aqueous	05/22/2024 1150	05/23/2024
020	MW-18-105_052024	Aqueous	05/20/2024 1010	05/23/2024
021	MW-18-103_052024	Aqueous	05/20/2024 1220	05/23/2024
022	MW-18-90_052024	Aqueous	05/20/2024 1525	05/23/2024
023	MW-18-89_052124	Aqueous	05/21/2024 0915	05/23/2024
024	MW-18-95_052124	Aqueous	05/21/2024 1040	05/23/2024
025	MW-19-112_052124	Aqueous	05/21/2024 1220	05/23/2024
026	MW-19-113_052124	Aqueous	05/21/2024 1255	05/23/2024
027	MW-18-100_052124	Aqueous	05/21/2024 1540	05/23/2024
028	EB-05_052124	Aqueous	05/21/2024 1225	05/23/2024
029	DUP-06_052024	Aqueous	05/20/2024	05/23/2024
030	MW-19-114_052024	Aqueous	05/20/2024 1010	05/23/2024
031	MW-18-104_052024	Aqueous	05/20/2024 1140	05/23/2024
032	MW-18-102_052024	Aqueous	05/20/2024 1325	05/23/2024
033	MW-18-98_052024	Aqueous	05/20/2024 1620	05/23/2024
034	MW-18-99_052024	Aqueous	05/20/2024 1740	05/23/2024

(34 samples)

Detection Summary

Arcadis U.S., Inc.

Lot Number: ZE23018

Project Name: RACER Lansing GWS

Project Number: 30214036.0370A

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
004	MW-18-91_052124	Aqueous	PFBS	PFAS by ID	2.1	J	ng/L	28
004	MW-18-91_052124	Aqueous	PFDS	PFAS by ID	2.0	J	ng/L	28
004	MW-18-91_052124	Aqueous	PFHpS	PFAS by ID	0.73	J	ng/L	28
004	MW-18-91_052124	Aqueous	PFHxS	PFAS by ID	2.6	J	ng/L	28
004	MW-18-91_052124	Aqueous	PFBA	PFAS by ID	8.6		ng/L	28
004	MW-18-91_052124	Aqueous	PFDA	PFAS by ID	0.85	J	ng/L	28
004	MW-18-91_052124	Aqueous	PFHpA	PFAS by ID	2.3	J	ng/L	28
004	MW-18-91_052124	Aqueous	PFHxA	PFAS by ID	2.7	J	ng/L	28
004	MW-18-91_052124	Aqueous	PFNA	PFAS by ID	1.2	J	ng/L	28
004	MW-18-91_052124	Aqueous	PFOA	PFAS by ID	5.8		ng/L	28
004	MW-18-91_052124	Aqueous	PFPeA	PFAS by ID	3.5		ng/L	28
004	MW-18-91_052124	Aqueous	PFOS	PFAS by ID	34		ng/L	28
005	MW-19-111_052124	Aqueous	PFBS	PFAS by ID	1.4	J	ng/L	30
005	MW-19-111_052124	Aqueous	PFHxS	PFAS by ID	1.6	J	ng/L	30
005	MW-19-111_052124	Aqueous	PFBA	PFAS by ID	2.2	J	ng/L	30
005	MW-19-111_052124	Aqueous	PFHpA	PFAS by ID	0.87	J	ng/L	30
005	MW-19-111_052124	Aqueous	PFHxA	PFAS by ID	1.9	J	ng/L	30
005	MW-19-111_052124	Aqueous	PFOA	PFAS by ID	6.5		ng/L	30
005	MW-19-111_052124	Aqueous	PFPeA	PFAS by ID	0.84	J	ng/L	30
006	MW-19-108_052124	Aqueous	PFBS	PFAS by ID	1.5	J	ng/L	32
006	MW-19-108_052124	Aqueous	PFHxS	PFAS by ID	1.2	J	ng/L	32
006	MW-19-108_052124	Aqueous	PFBA	PFAS by ID	1.4	J	ng/L	32
006	MW-19-108_052124	Aqueous	PFHpA	PFAS by ID	0.57	J	ng/L	32
006	MW-19-108_052124	Aqueous	PFOA	PFAS by ID	4.3		ng/L	32
006	MW-19-108_052124	Aqueous	PFPeA	PFAS by ID	0.49	J	ng/L	32
006	MW-19-108_052124	Aqueous	PFOS	PFAS by ID	4.5		ng/L	32
007	MW-18-92_052124	Aqueous	PFBS	PFAS by ID	0.86	J	ng/L	34
007	MW-18-92_052124	Aqueous	PFHxS	PFAS by ID	0.47	J	ng/L	34
007	MW-18-92_052124	Aqueous	PFBA	PFAS by ID	1.3	J	ng/L	34
007	MW-18-92_052124	Aqueous	PFOA	PFAS by ID	1.2	J	ng/L	34
008	MW-19-107_052124	Aqueous	PFBS	PFAS by ID	2.4	J	ng/L	36
008	MW-19-107_052124	Aqueous	PFPeS	PFAS by ID	0.53	J	ng/L	36
008	MW-19-107_052124	Aqueous	PFHxS	PFAS by ID	3.9		ng/L	36
008	MW-19-107_052124	Aqueous	PFBA	PFAS by ID	2.9	J	ng/L	36
008	MW-19-107_052124	Aqueous	PFHpA	PFAS by ID	0.73	J	ng/L	36
008	MW-19-107_052124	Aqueous	PFOA	PFAS by ID	4.7		ng/L	36
008	MW-19-107_052124	Aqueous	PFPeA	PFAS by ID	1.2	J	ng/L	36
008	MW-19-107_052124	Aqueous	PFOS	PFAS by ID	3.2	J	ng/L	36
010	UNK-15_052124	Aqueous	PFHpS	PFAS by ID	10	J	ng/L	40
010	UNK-15_052124	Aqueous	PFHxS	PFAS by ID	14	J	ng/L	40
010	UNK-15_052124	Aqueous	PFBA	PFAS by ID	14	J	ng/L	40
010	UNK-15_052124	Aqueous	PFHpA	PFAS by ID	6.2	J	ng/L	40
010	UNK-15_052124	Aqueous	PFHxA	PFAS by ID	9.1	J	ng/L	40

Detection Summary (Continued)

Lot Number: ZE23018

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
010	UNK-15_052124	Aqueous	PFNA	PFAS by ID	4.4	J	ng/L	40
010	UNK-15_052124	Aqueous	PFOA	PFAS by ID	26	J	ng/L	40
010	UNK-15_052124	Aqueous	PFPeA	PFAS by ID	7.9	J	ng/L	40
010	UNK-15_052124	Aqueous	PFOS	PFAS by ID	1000		ng/L	40
011	MW-02-04(3)_052124	Aqueous	PFBS	PFAS by ID	1.9	J	ng/L	42
011	MW-02-04(3)_052124	Aqueous	PFBA	PFAS by ID	8.7		ng/L	42
011	MW-02-04(3)_052124	Aqueous	PFHxA	PFAS by ID	5.0		ng/L	42
011	MW-02-04(3)_052124	Aqueous	PFPeA	PFAS by ID	9.4		ng/L	42
012	MW-18-94_052124	Aqueous	PFBA	PFAS by ID	7.2		ng/L	44
012	MW-18-94_052124	Aqueous	PFPeA	PFAS by ID	1.6	J	ng/L	44
013	MW-18-97_052124	Aqueous	PFBS	PFAS by ID	0.40	J	ng/L	46
013	MW-18-97_052124	Aqueous	PFBA	PFAS by ID	1.8	J	ng/L	46
013	MW-18-97_052124	Aqueous	PFPeA	PFAS by ID	0.56	J	ng/L	46
014	MW-18-101_052124	Aqueous	PFBA	PFAS by ID	4.6		ng/L	48
014	MW-18-101_052124	Aqueous	PFPeA	PFAS by ID	0.94	J	ng/L	48
015	MW-23_052124	Aqueous	PFBA	PFAS by ID	1.8	J	ng/L	50
015	MW-23_052124	Aqueous	PFOA	PFAS by ID	0.85	J	ng/L	50
015	MW-23_052124	Aqueous	PFPeA	PFAS by ID	2.8	J	ng/L	50
015	MW-23_052124	Aqueous	PFOS	PFAS by ID	2.5	J	ng/L	50
016	MW-91-2R_052224	Aqueous	PFBA	PFAS by ID	7.4		ng/L	52
017	DUP-09_052224	Aqueous	PFBA	PFAS by ID	7.9		ng/L	54
018	CH-14-RO_052224	Aqueous	PFBS	PFAS by ID	120	J	ng/L	56
018	CH-14-RO_052224	Aqueous	PFHpS	PFAS by ID	400	S	ng/L	56
018	CH-14-RO_052224	Aqueous	PFPeS	PFAS by ID	390	S	ng/L	56
018	CH-14-RO_052224	Aqueous	PFHxS	PFAS by ID	1900	S	ng/L	56
018	CH-14-RO_052224	Aqueous	PFHpA	PFAS by ID	23	J	ng/L	56
018	CH-14-RO_052224	Aqueous	PFHxA	PFAS by ID	49	JS	ng/L	56
018	CH-14-RO_052224	Aqueous	PFOA	PFAS by ID	130	JS	ng/L	56
018	CH-14-RO_052224	Aqueous	PFOS	PFAS by ID	11000	S	ng/L	56
019	MW-18-88_052224	Aqueous	PFBS	PFAS by ID	2.4	J	ng/L	58
019	MW-18-88_052224	Aqueous	PFHpS	PFAS by ID	2.6	J	ng/L	58
019	MW-18-88_052224	Aqueous	PFHxS	PFAS by ID	4.5		ng/L	58
019	MW-18-88_052224	Aqueous	PFBA	PFAS by ID	10		ng/L	58
019	MW-18-88_052224	Aqueous	PFHpA	PFAS by ID	0.93	J	ng/L	58
019	MW-18-88_052224	Aqueous	PFNA	PFAS by ID	0.50	J	ng/L	58
019	MW-18-88_052224	Aqueous	PFOA	PFAS by ID	7.4		ng/L	58
019	MW-18-88_052224	Aqueous	PFOS	PFAS by ID	220		ng/L	58
020	MW-18-105_052024	Aqueous	PFBS	PFAS by ID	4.9		ng/L	60
020	MW-18-105_052024	Aqueous	PFHxS	PFAS by ID	1.7	J	ng/L	60
020	MW-18-105_052024	Aqueous	PFBA	PFAS by ID	1.9	J	ng/L	60
020	MW-18-105_052024	Aqueous	PFOA	PFAS by ID	1.0	J	ng/L	60
020	MW-18-105_052024	Aqueous	PFOS	PFAS by ID	6.5		ng/L	60
021	MW-18-103_052024	Aqueous	PFBS	PFAS by ID	8.5		ng/L	62
021	MW-18-103_052024	Aqueous	PFPeS	PFAS by ID	6.4		ng/L	62
021	MW-18-103_052024	Aqueous	PFHxS	PFAS by ID	63		ng/L	62
021	MW-18-103_052024	Aqueous	PFBA	PFAS by ID	2.8	J	ng/L	62
021	MW-18-103_052024	Aqueous	PFPeA	PFAS by ID	0.72	J	ng/L	62
021	MW-18-103_052024	Aqueous	PFOS	PFAS by ID	3.4	J	ng/L	62

Detection Summary (Continued)

Lot Number: ZE23018

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
022	MW-18-90_052024	Aqueous	PFBS	PFAS by ID	2.1	J	ng/L	64
022	MW-18-90_052024	Aqueous	PFHpS	PFAS by ID	21		ng/L	64
022	MW-18-90_052024	Aqueous	PFHxS	PFAS by ID	16	J	ng/L	64
022	MW-18-90_052024	Aqueous	PFBA	PFAS by ID	72	Q	ng/L	64
022	MW-18-90_052024	Aqueous	PFHpA	PFAS by ID	4.1	J	ng/L	64
022	MW-18-90_052024	Aqueous	PFHxA	PFAS by ID	5.4	J	ng/L	64
022	MW-18-90_052024	Aqueous	PFOA	PFAS by ID	14	J	ng/L	64
022	MW-18-90_052024	Aqueous	PFOS	PFAS by ID	920		ng/L	64
023	MW-18-89_052124	Aqueous	PFBS	PFAS by ID	1.5	J	ng/L	66
023	MW-18-89_052124	Aqueous	PFHpS	PFAS by ID	2.3	J	ng/L	66
023	MW-18-89_052124	Aqueous	PFHxS	PFAS by ID	5.2		ng/L	66
023	MW-18-89_052124	Aqueous	PFBA	PFAS by ID	9.0		ng/L	66
023	MW-18-89_052124	Aqueous	PFDA	PFAS by ID	0.83	J	ng/L	66
023	MW-18-89_052124	Aqueous	PFHpA	PFAS by ID	3.5	J	ng/L	66
023	MW-18-89_052124	Aqueous	PFHxA	PFAS by ID	5.4		ng/L	66
023	MW-18-89_052124	Aqueous	PFNA	PFAS by ID	1.6	J	ng/L	66
023	MW-18-89_052124	Aqueous	PFOA	PFAS by ID	13		ng/L	66
023	MW-18-89_052124	Aqueous	PFOS	PFAS by ID	120		ng/L	66
024	MW-18-95_052124	Aqueous	PFDS	PFAS by ID	0.98	J	ng/L	68
024	MW-18-95_052124	Aqueous	PFHxS	PFAS by ID	0.79	J	ng/L	68
024	MW-18-95_052124	Aqueous	PFBA	PFAS by ID	8.4		ng/L	68
024	MW-18-95_052124	Aqueous	PFDA	PFAS by ID	1.2	J	ng/L	68
024	MW-18-95_052124	Aqueous	PFHpA	PFAS by ID	1.4	J	ng/L	68
024	MW-18-95_052124	Aqueous	PFNA	PFAS by ID	1.6	J	ng/L	68
024	MW-18-95_052124	Aqueous	PFOA	PFAS by ID	4.5		ng/L	68
024	MW-18-95_052124	Aqueous	PFPeA	PFAS by ID	2.2	J	ng/L	68
024	MW-18-95_052124	Aqueous	PFOS	PFAS by ID	56		ng/L	68
026	MW-19-113_052124	Aqueous	PFBS	PFAS by ID	1.6	J	ng/L	72
026	MW-19-113_052124	Aqueous	PFHxS	PFAS by ID	1.2	J	ng/L	72
026	MW-19-113_052124	Aqueous	PFBA	PFAS by ID	2.3	J	ng/L	72
026	MW-19-113_052124	Aqueous	PFOA	PFAS by ID	3.1	J	ng/L	72
026	MW-19-113_052124	Aqueous	PFOS	PFAS by ID	3.5	J	ng/L	72
027	MW-18-100_052124	Aqueous	PFBS	PFAS by ID	1.6	J	ng/L	74
027	MW-18-100_052124	Aqueous	PFHxS	PFAS by ID	2.4	J	ng/L	74
027	MW-18-100_052124	Aqueous	PFBA	PFAS by ID	11		ng/L	74
027	MW-18-100_052124	Aqueous	PFHpA	PFAS by ID	1.9	J	ng/L	74
027	MW-18-100_052124	Aqueous	PFHxA	PFAS by ID	4.8		ng/L	74
027	MW-18-100_052124	Aqueous	PFOA	PFAS by ID	2.9	J	ng/L	74
027	MW-18-100_052124	Aqueous	PFPeA	PFAS by ID	3.0	J	ng/L	74
029	DUP-06_052024	Aqueous	PFHpS	PFAS by ID	18		ng/L	78
029	DUP-06_052024	Aqueous	PFOSA	PFAS by ID	0.85	J	ng/L	78
029	DUP-06_052024	Aqueous	PFPeS	PFAS by ID	2.2	J	ng/L	78
029	DUP-06_052024	Aqueous	PFHxS	PFAS by ID	16		ng/L	78
029	DUP-06_052024	Aqueous	PFDA	PFAS by ID	2.0	J	ng/L	78
029	DUP-06_052024	Aqueous	PFHpA	PFAS by ID	3.8	J	ng/L	78
029	DUP-06_052024	Aqueous	PFHxA	PFAS by ID	4.8		ng/L	78
029	DUP-06_052024	Aqueous	PFNA	PFAS by ID	1.5	J	ng/L	78
029	DUP-06_052024	Aqueous	PFOA	PFAS by ID	14		ng/L	78

Detection Summary (Continued)

Lot Number: ZE23018

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
029	DUP-06_052024	Aqueous	PFOS	PFAS by ID	1100		ng/L	78
030	MW-19-114_052024	Aqueous	PFBS	PFAS by ID	1.3	J	ng/L	80
030	MW-19-114_052024	Aqueous	PFHxS	PFAS by ID	0.81	J	ng/L	80
030	MW-19-114_052024	Aqueous	PFBA	PFAS by ID	5.5		ng/L	80
030	MW-19-114_052024	Aqueous	PFOS	PFAS by ID	2.6	J	ng/L	80
031	MW-18-104_052024	Aqueous	PFBS	PFAS by ID	0.97	J	ng/L	82
031	MW-18-104_052024	Aqueous	PFHxS	PFAS by ID	0.61	J	ng/L	82
031	MW-18-104_052024	Aqueous	PFOS	PFAS by ID	3.6	J	ng/L	82
033	MW-18-98_052024	Aqueous	PFBS	PFAS by ID	0.68	J	ng/L	86
033	MW-18-98_052024	Aqueous	PFHxS	PFAS by ID	0.60	J	ng/L	86
033	MW-18-98_052024	Aqueous	PFBA	PFAS by ID	8.7		ng/L	86
033	MW-18-98_052024	Aqueous	PFHpA	PFAS by ID	1.8	J	ng/L	86
033	MW-18-98_052024	Aqueous	PFHxA	PFAS by ID	2.7	J	ng/L	86
033	MW-18-98_052024	Aqueous	PFNA	PFAS by ID	1.7	J	ng/L	86
033	MW-18-98_052024	Aqueous	PFOA	PFAS by ID	2.5	J	ng/L	86
033	MW-18-98_052024	Aqueous	PFPeA	PFAS by ID	1.5	J	ng/L	86
033	MW-18-98_052024	Aqueous	PFOS	PFAS by ID	140		ng/L	86
034	MW-18-99_052024	Aqueous	PFBS	PFAS by ID	1.3	J	ng/L	88
034	MW-18-99_052024	Aqueous	PFHpS	PFAS by ID	0.64	J	ng/L	88
034	MW-18-99_052024	Aqueous	PFHxS	PFAS by ID	1.6	J	ng/L	88
034	MW-18-99_052024	Aqueous	PFBA	PFAS by ID	12		ng/L	88
034	MW-18-99_052024	Aqueous	PFDA	PFAS by ID	0.84	J	ng/L	88
034	MW-18-99_052024	Aqueous	PFHpA	PFAS by ID	2.6	J	ng/L	88
034	MW-18-99_052024	Aqueous	PFHxA	PFAS by ID	4.6		ng/L	88
034	MW-18-99_052024	Aqueous	PFNA	PFAS by ID	1.0	J	ng/L	88
034	MW-18-99_052024	Aqueous	PFOA	PFAS by ID	3.9		ng/L	88
034	MW-18-99_052024	Aqueous	PFPeA	PFAS by ID	3.6	J	ng/L	88
034	MW-18-99_052024	Aqueous	PFOS	PFAS by ID	47		ng/L	88

(167 detections)

PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE23018-001**

Description: **MW-18-93_052124** Matrix: **Aqueous**

Date Sampled: **05/21/2024 1005** Project Name: **RACER Lansing GWS**

Date Received: **05/23/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/07/2024 1558	OMNS	06/06/2024 1221	12606

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.4	0.44	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.4	0.61	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.4	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.4	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.4	0.81	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.4	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.4	0.45	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.4	0.69	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.4	0.86	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.7	0.38	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.7	0.72	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.7	0.46	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.7	0.66	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.7	0.57	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.7	0.55	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.7	0.51	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		3.7	0.55	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.7	0.48	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.7	0.44	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.7	0.41	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.7	0.63	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.7	0.43	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.7	0.76	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.7	0.50	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.7	0.55	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.7	0.49	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.7	0.58	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.7	1.8	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		96	25-150
13C2_6:2FTS	N	169	25-150
13C2_8:2FTS		91	25-150
13C2_PFDoA		94	25-150
13C2_PFTeDA		73	25-150
13C3_PFBS		99	25-150
13C3_PFHxS		99	25-150
13C3-HFPO-DA		102	25-150
13C4_PFBA		96	25-150
13C4_PFHpA		103	25-150
13C5_PFHxA		107	25-150
13C5_PFPeA		105	25-150
13C6_PFDA		102	25-150
13C7_PFUdA		89	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**
Laboratory ID: **ZE23018-001**
Description: **MW-18-93_052124**
Matrix: **Aqueous**
Date Sampled: **05/21/2024 1005**
Project Name: **RACER Lansing GWS**
Date Received: **05/23/2024**
Project Number: **30214036.0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		105	25-150
13C8_PFOS		102	25-150
13C8_PFOSA		101	10-150
13C9_PFNA		95	25-150
d5-EtFOSAA		98	25-150
d3-MeFOSAA		93	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE23018-002**

Description: **DUP-08_052124** Matrix: **Aqueous**

Date Sampled: **05/21/2024** Project Name: **RACER Lansing GWS**

Date Received: **05/23/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/07/2024 1609	OMNS	06/06/2024 1221	12606

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.1	0.43	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.1	0.59	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.1	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.1	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.1	0.78	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.1	0.43	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.1	0.67	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.1	0.83	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.6	0.37	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.6	0.69	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.6	0.44	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.6	0.63	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.6	0.55	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.6	0.53	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.6	0.49	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		3.6	0.53	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.6	0.47	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.6	0.42	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.6	0.40	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.6	0.61	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.6	0.41	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.6	0.74	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.6	0.48	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.6	0.53	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.6	0.47	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.6	0.56	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.6	1.8	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		103	25-150
13C2_6:2FTS	N	193	25-150
13C2_8:2FTS		93	25-150
13C2_PFDoA		93	25-150
13C2_PFTeDA		77	25-150
13C3_PFBS		105	25-150
13C3_PFHxS		102	25-150
13C3-HFPO-DA		112	25-150
13C4_PFBA		102	25-150
13C4_PFHpA		103	25-150
13C5_PFHxA		107	25-150
13C5_PFPeA		110	25-150
13C6_PFDA		91	25-150
13C7_PFUdA		84	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE23018-002**

Description: **DUP-08_052124** Matrix: **Aqueous**

Date Sampled: **05/21/2024** Project Name: **RACER Lansing GWS**

Date Received: **05/23/2024** Project Number: **30214036.0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		107	25-150
13C8_PFOS		102	25-150
13C8_PFOSA		103	10-150
13C9_PFNA		103	25-150
d5-EtFOSAA		102	25-150
d3-MeFOSAA		99	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE23018-003**

Description: **EB-07_052124** Matrix: **Aqueous**

Date Sampled: **05/21/2024 0905** Project Name: **RACER Lansing GWS**

Date Received: **05/23/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/07/2024 1619	OMNS	06/06/2024 1221	12606

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.0	0.42	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.0	0.58	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.0	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.0	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.0	0.76	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.0	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.0	0.42	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.0	0.65	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.0	0.81	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.5	0.36	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.5	0.68	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.5	0.43	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.5	0.62	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.5	0.53	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.5	0.52	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.5	0.48	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		3.5	0.52	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.5	0.46	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.5	0.41	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.5	0.39	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.5	0.60	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.5	0.40	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.5	0.72	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.5	0.47	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.5	0.52	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.5	0.46	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.5	0.55	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.5	1.7	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		110	25-150
13C2_6:2FTS	N	305	25-150
13C2_8:2FTS		95	25-150
13C2_PFDoA		93	25-150
13C2_PFTeDA		88	25-150
13C3_PFBS		104	25-150
13C3_PFHxS		98	25-150
13C3-HFPO-DA		101	25-150
13C4_PFBA		103	25-150
13C4_PFHpA		100	25-150
13C5_PFHxA		104	25-150
13C5_PFPeA		102	25-150
13C6_PFDA		98	25-150
13C7_PFUdA		97	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
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S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE23018-003**

Description: **EB-07_052124** Matrix: **Aqueous**

Date Sampled: **05/21/2024 0905** Project Name: **RACER Lansing GWS**

Date Received: **05/23/2024** Project Number: **30214036.0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		123	25-150
13C8_PFOS		104	25-150
13C8_PFOSA		105	10-150
13C9_PFNA		103	25-150
d5-EtFOSAA		106	25-150
d3-MeFOSAA		94	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE23018-004**

Description: **MW-18-91_052124** Matrix: **Aqueous**

Date Sampled: **05/21/2024 1115** Project Name: **RACER Lansing GWS**

Date Received: **05/23/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/07/2024 1630	OMNS	06/06/2024 1221	12606

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.6	0.40	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.6	0.55	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND	Q	6.6	1.3	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	6.6	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	6.6	0.73	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.6	1.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.6	0.40	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.6	0.62	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.6	0.77	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**2.1**	**J**	**3.3**	**0.34**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	**335-77-3**	**PFAS by ID SOP**	**2.0**	**J**	**3.3**	**0.65**	**ng/L**	**1**
Perfluoro-1-heptanesulfonic acid (PFHpS)	**375-92-8**	**PFAS by ID SOP**	**0.73**	**J**	**3.3**	**0.41**	**ng/L**	**1**
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.3	0.59	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.3	0.51	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.3	0.49	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**2.6**	**J**	**3.3**	**0.46**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**8.6**		**3.3**	**0.50**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	**335-76-2**	**PFAS by ID SOP**	**0.85**	**J**	**3.3**	**0.44**	**ng/L**	**1**
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.3	0.39	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**2.3**	**J**	**3.3**	**0.37**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**2.7**	**J**	**3.3**	**0.57**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**1.2**	**J**	**3.3**	**0.38**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**5.8**		**3.3**	**0.69**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**3.5**		**3.3**	**0.45**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.3	0.50	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.3	0.44	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.3	0.52	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**34**		**3.3**	**1.7**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	255	25-150
13C2_6:2FTS	N	277	25-150
13C2_8:2FTS	N	186	25-150
13C2_PFDoA		86	25-150
13C2_PFTeDA		71	25-150
13C3_PFBS		79	25-150
13C3_PFHxS		97	25-150
13C3-HFPO-DA		78	25-150
13C4_PFBA		46	25-150
13C4_PFHpA		78	25-150
13C5_PFHxA		85	25-150
13C5_PFPeA		74	25-150
13C6_PFDA		99	25-150
13C7_PFUdA		100	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**
Laboratory ID: **ZE23018-004**
Description: **MW-18-91_052124**
Matrix: **Aqueous**
Date Sampled: **05/21/2024 1115**
Project Name: **RACER Lansing GWS**
Date Received: **05/23/2024**
Project Number: **30214036.0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		104	25-150
13C8_PFOS		94	25-150
13C8_PFOSA		97	10-150
13C9_PFNA		104	25-150
d5-EtFOSAA		129	25-150
d3-MeFOSAA		129	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE23018-005**

Description: **MW-19-111_052124** Matrix: **Aqueous**

Date Sampled: **05/21/2024 1245** Project Name: **RACER Lansing GWS**

Date Received: **05/23/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/07/2024 1641	OMNS	06/06/2024 1221	12606

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.8	0.41	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.8	0.57	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.8	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	6.8	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	6.8	0.74	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.8	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.8	0.41	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.8	0.64	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.8	0.79	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**1.4**	**J**	**3.4**	**0.35**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.4	0.66	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.4	0.43	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.4	0.61	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.4	0.52	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**1.6**	**J**	**3.4**	**0.47**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**2.2**	**J**	**3.4**	**0.51**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.4	0.40	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**0.87**	**J**	**3.4**	**0.38**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**1.9**	**J**	**3.4**	**0.59**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.4	0.39	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**6.5**		**3.4**	**0.71**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**0.84**	**J**	**3.4**	**0.46**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.4	0.53	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.4	1.7	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	177	25-150
13C2_6:2FTS	N	237	25-150
13C2_8:2FTS		94	25-150
13C2_PFDoA		101	25-150
13C2_PFTeDA		88	25-150
13C3_PFBS		91	25-150
13C3_PFHxS		112	25-150
13C3-HFPO-DA		102	25-150
13C4_PFBA		58	25-150
13C4_PFHpA		104	25-150
13C5_PFHxA		112	25-150
13C5_PFPeA		97	25-150
13C6_PFDA		100	25-150
13C7_PFUdA		96	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**
Laboratory ID: **ZE23018-005**
Description: **MW-19-111_052124**
Matrix: **Aqueous**
Date Sampled: **05/21/2024 1245**
Project Name: **RACER Lansing GWS**
Date Received: **05/23/2024**
Project Number: **30214036.0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		118	25-150
13C8_PFOS		103	25-150
13C8_PFOSA		103	10-150
13C9_PFNA		110	25-150
d5-EtFOSAA		104	25-150
d3-MeFOSAA		97	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE23018-006**

Description: **MW-19-108_052124** Matrix: **Aqueous**

Date Sampled: **05/21/2024 1405** Project Name: **RACER Lansing GWS**

Date Received: **05/23/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/07/2024 1702	OMNS	06/06/2024 1221	12606

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.9	0.42	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.9	0.58	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.9	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	6.9	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	6.9	0.76	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.9	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.9	0.42	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.9	0.65	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.9	0.81	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**1.5**	**J**	**3.5**	**0.36**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.5	0.67	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.5	0.43	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.5	0.62	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.5	0.53	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.5	0.52	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**1.2**	**J**	**3.5**	**0.48**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**1.4**	**J**	**3.5**	**0.52**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.5	0.46	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.5	0.41	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**0.57**	**J**	**3.5**	**0.39**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.5	0.60	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.5	0.40	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**4.3**		**3.5**	**0.72**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**0.49**	**J**	**3.5**	**0.47**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.5	0.52	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.5	0.46	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.5	0.54	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**4.5**		**3.5**	**1.7**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	179	25-150
13C2_6:2FTS	N	203	25-150
13C2_8:2FTS		89	25-150
13C2_PFDoA		86	25-150
13C2_PFTeDA		87	25-150
13C3_PFBS		89	25-150
13C3_PFHxS		97	25-150
13C3-HFPO-DA		99	25-150
13C4_PFBA		51	25-150
13C4_PFHpA		96	25-150
13C5_PFHxA		105	25-150
13C5_PFPeA		87	25-150
13C6_PFDA		92	25-150
13C7_PFUdA		84	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE23018-006**

Description: **MW-19-108_052124** Matrix: **Aqueous**

Date Sampled: **05/21/2024 1405** Project Name: **RACER Lansing GWS**

Date Received: **05/23/2024** Project Number: **30214036.0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		114	25-150
13C8_PFOS		93	25-150
13C8_PFOSA		96	10-150
13C9_PFNA		99	25-150
d5-EtFOSAA		98	25-150
d3-MeFOSAA		95	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
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W = Reported on wet weight basis
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE23018-007**

Description: **MW-18-92_052124** Matrix: **Aqueous**

Date Sampled: **05/21/2024 1500** Project Name: **RACER Lansing GWS**

Date Received: **05/23/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/07/2024 1713	OMNS	06/06/2024 1221	12606

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.7	0.41	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.7	0.56	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.7	1.3	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	6.7	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	6.7	0.73	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.7	1.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.7	0.41	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.7	0.63	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.7	0.78	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**0.86**	**J**	**3.4**	**0.35**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.4	0.65	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.4	0.42	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.4	0.60	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.4	0.52	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.4	0.50	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**0.47**	**J**	**3.4**	**0.46**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**1.3**	**J**	**3.4**	**0.50**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.4	0.44	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.4	0.40	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.4	0.38	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.4	0.58	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.4	0.39	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**1.2**	**J**	**3.4**	**0.70**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.4	0.46	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.4	0.50	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.4	0.44	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.4	0.53	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.4	1.7	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	172	25-150
13C2_6:2FTS	N	163	25-150
13C2_8:2FTS		88	25-150
13C2_PFDoA		88	25-150
13C2_PFTeDA		84	25-150
13C3_PFBS		87	25-150
13C3_PFHxS		100	25-150
13C3-HFPO-DA		95	25-150
13C4_PFBA		59	25-150
13C4_PFHpA		98	25-150
13C5_PFHxA		105	25-150
13C5_PFPeA		95	25-150
13C6_PFDA		97	25-150
13C7_PFUdA		83	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**
Laboratory ID: **ZE23018-007**
Description: **MW-18-92_052124**
Matrix: **Aqueous**
Date Sampled: **05/21/2024 1500**
Project Name: **RACER Lansing GWS**
Date Received: **05/23/2024**
Project Number: **30214036.0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		111	25-150
13C8_PFOS		96	25-150
13C8_PFOSA		94	10-150
13C9_PFNA		94	25-150
d5-EtFOSAA		95	25-150
d3-MeFOSAA		87	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE23018-008**

Description: **MW-19-107_052124** Matrix: **Aqueous**

Date Sampled: **05/21/2024 1550** Project Name: **RACER Lansing GWS**

Date Received: **05/23/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/07/2024 1723	OMNS	06/06/2024 1221	12606

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.7	0.40	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.7	0.56	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.7	1.3	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	6.7	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	6.7	0.73	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.7	1.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.7	0.41	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.7	0.63	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.7	0.78	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**2.4**	**J**	**3.4**	**0.35**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.4	0.65	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.4	0.42	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.4	0.60	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	**2706-91-4**	**PFAS by ID SOP**	**0.53**	**J**	**3.4**	**0.50**	**ng/L**	**1**
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**3.9**		**3.4**	**0.46**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**2.9**	**J**	**3.4**	**0.50**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.4	0.44	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.4	0.40	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**0.73**	**J**	**3.4**	**0.38**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.4	0.58	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.4	0.39	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**4.7**		**3.4**	**0.70**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**1.2**	**J**	**3.4**	**0.46**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.4	0.50	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.4	0.44	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.4	0.53	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**3.2**	**J**	**3.4**	**1.7**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	224	25-150
13C2_6:2FTS	N	198	25-150
13C2_8:2FTS		90	25-150
13C2_PFDoA		70	25-150
13C2_PFTeDA		48	25-150
13C3_PFBS		83	25-150
13C3_PFHxS		109	25-150
13C3-HFPO-DA		83	25-150
13C4_PFBA		48	25-150
13C4_PFHpA		92	25-150
13C5_PFHxA		93	25-150
13C5_PFPeA		86	25-150
13C6_PFDA		89	25-150
13C7_PFUdA		74	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE23018-008**

Description: **MW-19-107_052124** Matrix: **Aqueous**

Date Sampled: **05/21/2024 1550** Project Name: **RACER Lansing GWS**

Date Received: **05/23/2024** Project Number: **30214036.0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		106	25-150
13C8_PFOS		97	25-150
13C8_PFOSA		89	10-150
13C9_PFNA		101	25-150
d5-EtFOSAA		83	25-150
d3-MeFOSAA		82	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE23018-009**

Description: **EB-06_052124** Matrix: **Aqueous**

Date Sampled: **05/21/2024 1815** Project Name: **RACER Lansing GWS**

Date Received: **05/23/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/07/2024 1734	OMNS	06/06/2024 1221	12606

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.3	0.44	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.3	0.61	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.3	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.3	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.3	0.80	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.3	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.3	0.44	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.3	0.68	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.3	0.85	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.7	0.38	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.7	0.71	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.7	0.46	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.7	0.65	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.7	0.56	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.7	0.54	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.7	0.50	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		3.7	0.55	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.7	0.48	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.7	0.43	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.7	0.41	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.7	0.63	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.7	0.42	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.7	0.76	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.7	0.50	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.7	0.55	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.7	0.48	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.7	0.57	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.7	1.8	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		106	25-150
13C2_6:2FTS	N	163	25-150
13C2_8:2FTS		90	25-150
13C2_PFDoA		92	25-150
13C2_PFTeDA		85	25-150
13C3_PFBS		100	25-150
13C3_PFHxS		108	25-150
13C3-HFPO-DA		106	25-150
13C4_PFBA		106	25-150
13C4_PFHpA		105	25-150
13C5_PFHxA		106	25-150
13C5_PFPeA		108	25-150
13C6_PFDA		104	25-150
13C7_PFUdA		87	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE23018-009**

Description: **EB-06_052124** Matrix: **Aqueous**

Date Sampled: **05/21/2024 1815** Project Name: **RACER Lansing GWS**

Date Received: **05/23/2024** Project Number: **30214036.0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		114	25-150
13C8_PFOS		102	25-150
13C8_PFOSA		101	10-150
13C9_PFNA		110	25-150
d5-EtFOSAA		101	25-150
d3-MeFOSAA		92	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE23018-010**

Description: **UNK-15_052124** Matrix: **Aqueous**

Date Sampled: **05/21/2024 1700** Project Name: **RACER Lansing GWS**

Date Received: **05/23/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	10	06/07/2024 1744	OMNS	06/06/2024 1221	12606

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		68	4.1	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		68	5.6	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		68	14	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	68	17	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	68	7.4	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		68	18	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		68	4.1	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		68	6.4	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		68	7.9	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		34	3.5	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		34	6.6	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	**375-92-8**	**PFAS by ID SOP**	**10**	**J**	**34**	**4.2**	**ng/L**	**1**
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		34	6.1	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		34	5.2	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		34	5.1	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**14**	**J**	**34**	**4.7**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**14**	**J**	**34**	**5.1**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		34	4.5	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		34	4.0	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**6.2**	**J**	**34**	**3.8**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**9.1**	**J**	**34**	**5.9**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**4.4**	**J**	**34**	**3.9**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**26**	**J**	**34**	**7.1**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**7.9**	**J**	**34**	**4.6**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		34	5.1	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		34	4.5	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		34	5.3	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**1000**		**34**	**17**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	153	25-150
13C2_6:2FTS	N	160	25-150
13C2_8:2FTS		115	25-150
13C2_PFDoA		104	25-150
13C2_PFTeDA		91	25-150
13C3_PFBS		117	25-150
13C3_PFHxS		111	25-150
13C3-HFPO-DA		116	25-150
13C4_PFBA		111	25-150
13C4_PFHpA		129	25-150
13C5_PFHxA		123	25-150
13C5_PFPeA		127	25-150
13C6_PFDA		103	25-150
13C7_PFUdA		103	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE23018-010**

Description: **UNK-15_052124** Matrix: **Aqueous**

Date Sampled: **05/21/2024 1700** Project Name: **RACER Lansing GWS**

Date Received: **05/23/2024** Project Number: **30214036.0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		125	25-150
13C8_PFOS		98	25-150
13C8_PFOSA		122	10-150
13C9_PFNA		115	25-150
d5-EtFOSAA		110	25-150
d3-MeFOSAA		116	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE23018-011**

Description: **MW-02-04(3)_052124** Matrix: **Aqueous**

Date Sampled: **05/21/2024 1100** Project Name: **RACER Lansing GWS**

Date Received: **05/23/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/07/2024 1827	OMNS	06/06/2024 1221	12606

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.5	0.45	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.5	0.62	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.5	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.5	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.5	0.82	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.5	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.5	0.45	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.5	0.70	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.5	0.87	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**1.9**	**J**	**3.7**	**0.39**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.7	0.73	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.7	0.47	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.7	0.67	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.7	0.57	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.7	0.56	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.7	0.52	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**8.7**		**3.7**	**0.56**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.7	0.49	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.7	0.44	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.7	0.42	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**5.0**		**3.7**	**0.64**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.7	0.43	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.7	0.78	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**9.4**		**3.7**	**0.51**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.7	0.56	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.7	0.50	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.7	0.59	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.7	1.9	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		124	25-150
13C2_6:2FTS		119	25-150
13C2_8:2FTS		86	25-150
13C2_PFDoA		85	25-150
13C2_PFTeDA		67	25-150
13C3_PFBS		85	25-150
13C3_PFHxS		96	25-150
13C3-HFPO-DA		90	25-150
13C4_PFBA		72	25-150
13C4_PFHpA		96	25-150
13C5_PFHxA		102	25-150
13C5_PFPeA		97	25-150
13C6_PFDA		94	25-150
13C7_PFUdA		80	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE23018-011**

Description: **MW-02-04(3)_052124** Matrix: **Aqueous**

Date Sampled: **05/21/2024 1100** Project Name: **RACER Lansing GWS**

Date Received: **05/23/2024** Project Number: **30214036.0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		103	25-150
13C8_PFOS		94	25-150
13C8_PFOSA		91	10-150
13C9_PFNA		91	25-150
d5-EtFOSAA		82	25-150
d3-MeFOSAA		89	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE23018-012**

Description: **MW-18-94_052124** Matrix: **Aqueous**

Date Sampled: **05/21/2024 1425** Project Name: **RACER Lansing GWS**

Date Received: **05/23/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/07/2024 1838	OMNS	06/06/2024 1221	12606

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.1	0.43	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.1	0.59	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.1	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.1	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.1	0.78	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.1	0.43	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.1	0.67	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.1	0.83	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.6	0.37	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.6	0.69	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.6	0.44	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.6	0.63	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.6	0.54	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.6	0.53	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.6	0.49	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**7.2**		**3.6**	**0.53**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.6	0.47	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.6	0.42	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.6	0.40	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.6	0.61	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.6	0.41	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.6	0.74	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**1.6**	**J**	**3.6**	**0.48**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.6	0.53	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.6	0.47	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.6	0.56	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.6	1.8	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		110	25-150
13C2_6:2FTS	N	341	25-150
13C2_8:2FTS		93	25-150
13C2_PFDoA		83	25-150
13C2_PFTeDA		73	25-150
13C3_PFBS		91	25-150
13C3_PFHxS		98	25-150
13C3-HFPO-DA		97	25-150
13C4_PFBA		86	25-150
13C4_PFHpA		101	25-150
13C5_PFHxA		99	25-150
13C5_PFPeA		102	25-150
13C6_PFDA		92	25-150
13C7_PFUdA		85	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE23018-012**

Description: **MW-18-94_052124** Matrix: **Aqueous**

Date Sampled: **05/21/2024 1425** Project Name: **RACER Lansing GWS**

Date Received: **05/23/2024** Project Number: **30214036.0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		120	25-150
13C8_PFOS		94	25-150
13C8_PFOSA		93	10-150
13C9_PFNA		101	25-150
d5-EtFOSAA		89	25-150
d3-MeFOSAA		101	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
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S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE23018-013**

Description: **MW-18-97_052124** Matrix: **Aqueous**

Date Sampled: **05/21/2024 1240** Project Name: **RACER Lansing GWS**

Date Received: **05/23/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/07/2024 1848	OMNS	06/06/2024 1221	12606

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.1	0.43	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.1	0.59	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.1	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.1	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.1	0.77	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.1	0.43	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.1	0.66	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.1	0.82	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**0.40**	**J**	**3.5**	**0.37**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.5	0.69	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.5	0.44	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.5	0.63	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.5	0.54	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.5	0.52	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.5	0.49	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**1.8**	**J**	**3.5**	**0.53**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.5	0.46	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.5	0.42	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.5	0.39	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.5	0.61	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.5	0.41	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.5	0.73	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**0.56**	**J**	**3.5**	**0.48**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.5	0.53	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.5	0.47	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.5	0.55	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.5	1.8	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	152	25-150
13C2_6:2FTS	N	222	25-150
13C2_8:2FTS		89	25-150
13C2_PFDoA		87	25-150
13C2_PFTeDA		78	25-150
13C3_PFBS		101	25-150
13C3_PFHxS		102	25-150
13C3-HFPO-DA		102	25-150
13C4_PFBA		91	25-150
13C4_PFHpA		95	25-150
13C5_PFHxA		108	25-150
13C5_PFPeA		109	25-150
13C6_PFDA		91	25-150
13C7_PFUdA		86	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE23018-013**

Description: **MW-18-97_052124** Matrix: **Aqueous**

Date Sampled: **05/21/2024 1240** Project Name: **RACER Lansing GWS**

Date Received: **05/23/2024** Project Number: **30214036.0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		116	25-150
13C8_PFOS		96	25-150
13C8_PFOSA		108	10-150
13C9_PFNA		103	25-150
d5-EtFOSAA		102	25-150
d3-MeFOSAA		91	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE23018-014**

Description: **MW-18-101_052124** Matrix: **Aqueous**

Date Sampled: **05/21/2024 1550** Project Name: **RACER Lansing GWS**

Date Received: **05/23/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/07/2024 1859	OMNS	06/06/2024 1221	12606

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.9	0.48	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.9	0.66	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.9	1.6	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.9	2.0	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.9	0.87	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.9	2.1	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.9	0.48	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.9	0.74	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.9	0.92	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		4.0	0.41	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		4.0	0.77	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		4.0	0.49	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		4.0	0.71	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		4.0	0.61	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		4.0	0.59	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		4.0	0.55	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**4.6**		**4.0**	**0.60**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		4.0	0.52	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		4.0	0.47	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		4.0	0.44	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		4.0	0.68	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		4.0	0.46	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		4.0	0.82	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**0.94**	**J**	**4.0**	**0.54**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		4.0	0.59	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		4.0	0.52	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		4.0	0.62	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		4.0	2.0	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		121	25-150
13C2_6:2FTS		134	25-150
13C2_8:2FTS		92	25-150
13C2_PFDoA		90	25-150
13C2_PFTeDA		66	25-150
13C3_PFBS		97	25-150
13C3_PFHxS		111	25-150
13C3-HFPO-DA		100	25-150
13C4_PFBA		83	25-150
13C4_PFHpA		104	25-150
13C5_PFHxA		104	25-150
13C5_PFPeA		108	25-150
13C6_PFDA		87	25-150
13C7_PFUdA		81	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE23018-014**

Description: **MW-18-101_052124** Matrix: **Aqueous**

Date Sampled: **05/21/2024 1550** Project Name: **RACER Lansing GWS**

Date Received: **05/23/2024** Project Number: **30214036.0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		111	25-150
13C8_PFOS		93	25-150
13C8_PFOSA		97	10-150
13C9_PFNA		103	25-150
d5-EtFOSAA		97	25-150
d3-MeFOSAA		90	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
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S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE23018-015**

Description: **MW-23_052124** Matrix: **Aqueous**

Date Sampled: **05/21/2024 1715** Project Name: **RACER Lansing GWS**

Date Received: **05/23/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/07/2024 1910	OMNS	06/06/2024 1221	12606

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.3	0.44	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.3	0.61	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.3	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.3	0.80	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.3	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.3	0.44	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.3	0.69	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.3	0.85	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.7	0.38	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.7	0.71	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.7	0.46	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.7	0.65	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.7	0.56	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.7	0.54	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.7	0.50	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**1.8**	**J**	**3.7**	**0.55**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.7	0.48	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.7	0.43	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.7	0.41	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.7	0.63	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.7	0.42	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**0.85**	**J**	**3.7**	**0.76**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**2.8**	**J**	**3.7**	**0.50**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.7	0.55	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.7	0.48	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.7	0.57	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**2.5**	**J**	**3.7**	**1.8**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	166	25-150
13C2_6:2FTS		130	25-150
13C2_8:2FTS		92	25-150
13C2_PFDoA		79	25-150
13C2_PFTeDA		59	25-150
13C3_PFBS		95	25-150
13C3_PFHxS		96	25-150
13C3-HFPO-DA		101	25-150
13C4_PFBA		84	25-150
13C4_PFHpA		89	25-150
13C5_PFHxA		96	25-150
13C5_PFPeA		99	25-150
13C6_PFDA		93	25-150
13C7_PFUdA		89	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**
Laboratory ID: **ZE23018-015**
Description: **MW-23_052124**
Matrix: **Aqueous**
Date Sampled: **05/21/2024 1715**
Project Name: **RACER Lansing GWS**
Date Received: **05/23/2024**
Project Number: **30214036.0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		105	25-150
13C8_PFOS		89	25-150
13C8_PFOSA		98	10-150
13C9_PFNA		96	25-150
d5-EtFOSAA		94	25-150
d3-MeFOSAA		91	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE23018-016**

Description: **MW-91-2R_052224** Matrix: **Aqueous**

Date Sampled: **05/22/2024 0935** Project Name: **RACER Lansing GWS**

Date Received: **05/23/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/07/2024 1920	OMNS	06/06/2024 1221	12606

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.9	0.41	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.9	0.57	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.9	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	6.9	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	6.9	0.75	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.9	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.9	0.42	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.9	0.65	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.9	0.80	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.4	0.36	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.4	0.67	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.4	0.43	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.4	0.61	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.4	0.53	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.4	0.47	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**7.4**		**3.4**	**0.52**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.4	0.41	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.4	0.38	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.4	0.59	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.4	0.40	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.4	0.71	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.4	0.47	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.4	0.52	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.4	0.54	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.4	1.7	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	172	25-150
13C2_6:2FTS	N	257	25-150
13C2_8:2FTS		103	25-150
13C2_PFDoA		93	25-150
13C2_PFTeDA		76	25-150
13C3_PFBS		110	25-150
13C3_PFHxS		112	25-150
13C3-HFPO-DA		109	25-150
13C4_PFBA		82	25-150
13C4_PFHpA		113	25-150
13C5_PFHxA		118	25-150
13C5_PFPeA		116	25-150
13C6_PFDA		100	25-150
13C7_PFUdA		92	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**
Laboratory ID: **ZE23018-016**
Description: **MW-91-2R_052224**
Matrix: **Aqueous**
Date Sampled: **05/22/2024 0935**
Project Name: **RACER Lansing GWS**
Date Received: **05/23/2024**
Project Number: **30214036.0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		126	25-150
13C8_PFOS		103	25-150
13C8_PFOSA		104	10-150
13C9_PFNA		110	25-150
d5-EtFOSAA		111	25-150
d3-MeFOSAA		105	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE23018-017**

Description: **DUP-09_052224** Matrix: **Aqueous**

Date Sampled: **05/22/2024** Project Name: **RACER Lansing GWS**

Date Received: **05/23/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/11/2024 2122	OMNS	06/08/2024 2348	12768

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.8	0.41	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.8	0.57	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND	Q	6.8	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	6.8	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	6.8	0.75	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.8	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.8	0.41	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.8	0.64	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.8	0.80	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.4	0.35	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.4	0.67	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.4	0.43	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.4	0.61	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.4	0.52	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.4	0.47	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**7.9**		**3.4**	**0.51**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.4	0.40	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.4	0.38	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.4	0.59	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.4	0.40	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.4	0.71	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.4	0.47	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.4	0.54	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.4	1.7	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	214	25-150
13C2_6:2FTS	N	260	25-150
13C2_8:2FTS	N	155	25-150
13C2_PFDoA		95	25-150
13C2_PFTeDA		108	25-150
13C3_PFBS		107	25-150
13C3_PFHxS		128	25-150
13C3-HFPO-DA		117	25-150
13C4_PFBA		86	25-150
13C4_PFHpA		123	25-150
13C5_PFHxA		120	25-150
13C5_PFPeA		116	25-150
13C6_PFDA		120	25-150
13C7_PFUdA		99	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
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S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**
Laboratory ID: **ZE23018-017**
Description: **DUP-09_052224**
Matrix: **Aqueous**
Date Sampled: **05/22/2024**
Project Name: **RACER Lansing GWS**
Date Received: **05/23/2024**
Project Number: **30214036.0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		118	25-150
13C8_PFOS		112	25-150
13C8_PFOSA		116	10-150
13C9_PFNA		125	25-150
d5-EtFOSAA		128	25-150
d3-MeFOSAA		138	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE23018-018**

Description: **CH-14-RO_052224** Matrix: **Aqueous**

Date Sampled: **05/22/2024 1040** Project Name: **RACER Lansing GWS**

Date Received: **05/23/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	50	06/11/2024 2132	OMNS	06/08/2024 2348	12768

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		370	22	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		370	30	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND	S	370	74	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	QS	370	92	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	370	40	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		370	95	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		370	22	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND	S	370	34	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND	S	370	43	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**120**	**J**	**180**	**19**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND	S	180	36	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	**375-92-8**	**PFAS by ID SOP**	**400**	**S**	**180**	**23**	**ng/L**	**1**
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		180	33	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND	S	180	28	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	**2706-91-4**	**PFAS by ID SOP**	**390**	**S**	**180**	**27**	**ng/L**	**1**
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**1900**	**S**	**180**	**25**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND	S	180	28	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND	S	180	24	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		180	22	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**23**	**J**	**180**	**21**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**49**	**JS**	**180**	**32**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		180	21	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**130**	**JS**	**180**	**38**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		180	25	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		180	28	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		180	24	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND	S	180	29	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**11000**	**S**	**180**	**92**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	185	25-150
13C2_6:2FTS	N	156	25-150
13C2_8:2FTS		141	25-150
13C2_PFDoA		108	25-150
13C2_PFTeDA		114	25-150
13C3_PFBS		110	25-150
13C3_PFHxS		128	25-150
13C3-HFPO-DA		114	25-150
13C4_PFBA		116	25-150
13C4_PFHpA		113	25-150
13C5_PFHxA		116	25-150
13C5_PFPeA		110	25-150
13C6_PFDA		110	25-150
13C7_PFUdA		124	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE23018-018**

Description: **CH-14-RO_052224** Matrix: **Aqueous**

Date Sampled: **05/22/2024 1040** Project Name: **RACER Lansing GWS**

Date Received: **05/23/2024** Project Number: **30214036.0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		97	25-150
13C8_PFOS		113	25-150
13C8_PFOSA		125	10-150
13C9_PFNA		123	25-150
d5-EtFOSAA		125	25-150
d3-MeFOSAA		128	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE23018-019**

Description: **MW-18-88_052224** Matrix: **Aqueous**

Date Sampled: **05/22/2024 1150** Project Name: **RACER Lansing GWS**

Date Received: **05/23/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/11/2024 2204	OMNS	06/08/2024 2348	12768

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.1	0.43	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.1	0.59	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND	Q	7.1	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.1	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.1	0.77	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.1	0.43	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.1	0.66	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.1	0.83	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**2.4**	**J**	**3.5**	**0.37**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.5	0.69	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	**375-92-8**	**PFAS by ID SOP**	**2.6**	**J**	**3.5**	**0.44**	**ng/L**	**1**
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.5	0.63	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.5	0.54	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.5	0.53	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**4.5**		**3.5**	**0.49**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**10**		**3.5**	**0.53**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.5	0.46	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.5	0.42	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**0.93**	**J**	**3.5**	**0.40**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.5	0.61	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**0.50**	**J**	**3.5**	**0.41**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**7.4**		**3.5**	**0.73**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.5	0.48	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.5	0.53	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.5	0.47	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.5	0.55	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**220**		**3.5**	**1.8**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	268	25-150
13C2_6:2FTS	N	290	25-150
13C2_8:2FTS	N	155	25-150
13C2_PFDoA		102	25-150
13C2_PFTeDA		110	25-150
13C3_PFBS		110	25-150
13C3_PFHxS		134	25-150
13C3-HFPO-DA		115	25-150
13C4_PFBA		78	25-150
13C4_PFHpA		120	25-150
13C5_PFHxA		121	25-150
13C5_PFPeA		110	25-150
13C6_PFDA		120	25-150
13C7_PFUdA		113	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE23018-019**

Description: **MW-18-88_052224** Matrix: **Aqueous**

Date Sampled: **05/22/2024 1150** Project Name: **RACER Lansing GWS**

Date Received: **05/23/2024** Project Number: **30214036.0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		135	25-150
13C8_PFOS		119	25-150
13C8_PFOSA		132	10-150
13C9_PFNA		124	25-150
d5-EtFOSAA		127	25-150
d3-MeFOSAA		139	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE23018-020**

Description: **MW-18-105_052024** Matrix: **Aqueous**

Date Sampled: **05/20/2024 1010** Project Name: **RACER Lansing GWS**

Date Received: **05/23/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/11/2024 2215	OMNS	06/08/2024 2348	12768

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.3	0.44	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.3	0.61	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.3	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.3	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.3	0.80	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.3	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.3	0.44	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.3	0.69	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.3	0.86	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**4.9**		**3.7**	**0.38**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.7	0.71	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.7	0.46	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.7	0.65	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.7	0.56	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.7	0.55	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**1.7**	**J**	**3.7**	**0.51**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**1.9**	**J**	**3.7**	**0.55**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.7	0.48	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.7	0.43	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.7	0.41	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.7	0.63	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.7	0.42	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**1.0**	**J**	**3.7**	**0.76**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.7	0.50	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.7	0.55	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.7	0.49	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.7	0.58	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**6.5**		**3.7**	**1.8**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	179	25-150
13C2_6:2FTS	N	224	25-150
13C2_8:2FTS		127	25-150
13C2_PFDoA		93	25-150
13C2_PFTeDA		101	25-150
13C3_PFBS		110	25-150
13C3_PFHxS		130	25-150
13C3-HFPO-DA		113	25-150
13C4_PFBA		85	25-150
13C4_PFHpA		128	25-150
13C5_PFHxA		115	25-150
13C5_PFPeA		111	25-150
13C6_PFDA		107	25-150
13C7_PFUdA		109	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**
Laboratory ID: **ZE23018-020**
Description: **MW-18-105_052024**
Matrix: **Aqueous**
Date Sampled: **05/20/2024 1010**
Project Name: **RACER Lansing GWS**
Date Received: **05/23/2024**
Project Number: **30214036.0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		125	25-150
13C8_PFOS		100	25-150
13C8_PFOSA		119	10-150
13C9_PFNA		113	25-150
d5-EtFOSAA		106	25-150
d3-MeFOSAA		116	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE23018-021**

Description: **MW-18-103_052024** Matrix: **Aqueous**

Date Sampled: **05/20/2024 1220** Project Name: **RACER Lansing GWS**

Date Received: **05/23/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/11/2024 2226	OMNS	06/08/2024 2348	12768

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.5	0.45	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.5	0.62	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.5	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.5	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.5	0.82	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.5	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.5	0.45	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.5	0.70	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.5	0.87	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**8.5**		**3.7**	**0.39**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.7	0.73	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.7	0.47	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.7	0.66	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.7	0.57	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	**2706-91-4**	**PFAS by ID SOP**	**6.4**		**3.7**	**0.55**	**ng/L**	**1**
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**63**		**3.7**	**0.52**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**2.8**	**J**	**3.7**	**0.56**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.7	0.49	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.7	0.44	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.7	0.42	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.7	0.64	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.7	0.43	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.7	0.77	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**0.72**	**J**	**3.7**	**0.51**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.7	0.56	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.7	0.49	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.7	0.59	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**3.4**	**J**	**3.7**	**1.9**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		137	25-150
13C2_6:2FTS	N	190	25-150
13C2_8:2FTS		112	25-150
13C2_PFDoA		90	25-150
13C2_PFTeDA		102	25-150
13C3_PFBS		103	25-150
13C3_PFHxS		115	25-150
13C3-HFPO-DA		103	25-150
13C4_PFBA		74	25-150
13C4_PFHpA		119	25-150
13C5_PFHxA		113	25-150
13C5_PFPeA		107	25-150
13C6_PFDA		106	25-150
13C7_PFUdA		104	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE23018-021**

Description: **MW-18-103_052024** Matrix: **Aqueous**

Date Sampled: **05/20/2024 1220** Project Name: **RACER Lansing GWS**

Date Received: **05/23/2024** Project Number: **30214036.0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		115	25-150
13C8_PFOS		105	25-150
13C8_PFOSA		114	10-150
13C9_PFNA		116	25-150
d5-EtFOSAA		104	25-150
d3-MeFOSAA		110	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE23018-022**

Description: **MW-18-90_052024** Matrix: **Aqueous**

Date Sampled: **05/20/2024 1525** Project Name: **RACER Lansing GWS**

Date Received: **05/23/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	5	06/11/2024 2236	OMNS	06/08/2024 2348	12768

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		37	2.3	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		37	3.1	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND	Q	37	7.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	37	9.4	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	37	4.1	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		37	9.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		37	2.3	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		37	3.5	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		37	4.4	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**2.1**	**J**	**19**	**1.9**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		19	3.6	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	**375-92-8**	**PFAS by ID SOP**	**21**		**19**	**2.3**	**ng/L**	**1**
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		19	3.3	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		19	2.9	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		19	2.8	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**16**	**J**	**19**	**2.6**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**72**	**Q**	**19**	**2.8**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		19	2.5	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		19	2.2	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**4.1**	**J**	**19**	**2.1**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**5.4**	**J**	**19**	**3.2**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		19	2.2	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**14**	**J**	**19**	**3.9**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND	Q	19	2.5	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		19	2.8	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		19	2.5	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		19	2.9	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**920**		**19**	**9.4**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	238	25-150
13C2_6:2FTS	N	245	25-150
13C2_8:2FTS	N	171	25-150
13C2_PFDoA		102	25-150
13C2_PFTeDA		107	25-150
13C3_PFBS		114	25-150
13C3_PFHxS		138	25-150
13C3-HFPO-DA		102	25-150
13C4_PFBA	N	3.0	25-150
13C4_PFHpA		127	25-150
13C5_PFHxA		115	25-150
13C5_PFPeA	N	20	25-150
13C6_PFDA		129	25-150
13C7_PFUdA		136	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE23018-022**

Description: **MW-18-90_052024** Matrix: **Aqueous**

Date Sampled: **05/20/2024 1525** Project Name: **RACER Lansing GWS**

Date Received: **05/23/2024** Project Number: **30214036.0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		142	25-150
13C8_PFOS		125	25-150
13C8_PFOSA		141	10-150
13C9_PFNA		122	25-150
d5-EtFOSAA		134	25-150
d3-MeFOSAA		136	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE23018-023**

Description: **MW-18-89_052124** Matrix: **Aqueous**

Date Sampled: **05/21/2024 0915** Project Name: **RACER Lansing GWS**

Date Received: **05/23/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/11/2024 2247	OMNS	06/08/2024 2348	12768
2	SOP SPE	PFAS by ID SOP	1	06/18/2024 1352	OMNS	06/17/2024 1149	13114

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.7	0.46	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.7	0.63	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND	Q	7.7	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.7	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.7	0.84	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.7	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.7	0.46	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.7	0.72	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.7	0.89	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**1.5**	**J**	**3.8**	**0.40**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.8	0.74	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	**375-92-8**	**PFAS by ID SOP**	**2.3**	**J**	**3.8**	**0.48**	**ng/L**	**1**
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.8	0.68	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.8	0.59	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.8	0.57	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**5.2**		**3.8**	**0.53**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**9.0**		**3.8**	**0.57**	**ng/L**	**2**
Perfluoro-n-decanoic acid (PFDA)	**335-76-2**	**PFAS by ID SOP**	**0.83**	**J**	**3.8**	**0.50**	**ng/L**	**1**
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.8	0.45	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**3.5**	**J**	**3.8**	**0.43**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**5.4**		**3.8**	**0.66**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**1.6**	**J**	**3.8**	**0.44**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**13**		**3.8**	**0.79**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.8	0.52	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.8	0.57	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.8	0.51	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.8	0.60	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**120**		**3.8**	**1.9**	**ng/L**	**1**

Surrogate	Run 1 Q	Run 1 % Recovery	Run 1 Acceptance Limits	Run 2 Q	Run 2 % Recovery	Run 2 Acceptance Limits
13C2_4:2FTS	N	302	25-150	N	247	25-150
13C2_6:2FTS	N	265	25-150	N	220	25-150
13C2_8:2FTS	N	187	25-150		140	25-150
13C2_PFDoA		110	25-150		89	25-150
13C2_PFTeDA		106	25-150		78	25-150
13C3_PFBS		111	25-150		83	25-150
13C3_PFHxS		136	25-150		95	25-150
13C3-HFPO-DA		92	25-150		73	25-150
13C4_PFBA	N	23	25-150		51	25-150
13C4_PFHpA		112	25-150		85	25-150
13C5_PFHxA		110	25-150		95	25-150
13C5_PFPeA		100	25-150		83	25-150
13C6_PFDA		122	25-150		92	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE23018-023**

Description: **MW-18-89_052124** Matrix: **Aqueous**

Date Sampled: **05/21/2024 0915** Project Name: **RACER Lansing GWS**

Date Received: **05/23/2024** Project Number: **30214036.0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		123	25-150		103	25-150
13C8_PFOA		123	25-150		97	25-150
13C8_PFOS		114	25-150		84	25-150
13C8_PFOSA		120	10-150		98	10-150
13C9_PFNA		124	25-150		91	25-150
d5-EtFOSAA		135	25-150		102	25-150
d3-MeFOSAA		138	25-150		108	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE23018-024**

Description: **MW-18-95_052124** Matrix: **Aqueous**

Date Sampled: **05/21/2024 1040** Project Name: **RACER Lansing GWS**

Date Received: **05/23/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/11/2024 2258	OMNS	06/08/2024 2348	12768

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.5	0.45	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.5	0.62	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND	Q	7.5	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.5	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.5	0.82	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.5	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.5	0.45	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.5	0.71	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.5	0.88	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.8	0.39	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	**335-77-3**	**PFAS by ID SOP**	**0.98**	**J**	**3.8**	**0.73**	**ng/L**	**1**
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.8	0.47	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.8	0.67	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.8	0.58	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.8	0.56	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**0.79**	**J**	**3.8**	**0.52**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**8.4**		**3.8**	**0.56**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	**335-76-2**	**PFAS by ID SOP**	**1.2**	**J**	**3.8**	**0.49**	**ng/L**	**1**
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.8	0.44	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**1.4**	**J**	**3.8**	**0.42**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.8	0.65	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**1.6**	**J**	**3.8**	**0.43**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**4.5**		**3.8**	**0.78**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**2.2**	**J**	**3.8**	**0.51**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.8	0.56	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.8	0.50	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.8	0.59	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**56**		**3.8**	**1.9**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	327	25-150
13C2_6:2FTS	N	333	25-150
13C2_8:2FTS	N	289	25-150
13C2_PFDoA		108	25-150
13C2_PFTeDA		108	25-150
13C3_PFBS		104	25-150
13C3_PFHxS		133	25-150
13C3-HFPO-DA		84	25-150
13C4_PFBA		73	25-150
13C4_PFHpA		108	25-150
13C5_PFHxA		110	25-150
13C5_PFPeA		100	25-150
13C6_PFDA		107	25-150
13C7_PFUdA		122	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE23018-024**

Description: **MW-18-95_052124** Matrix: **Aqueous**

Date Sampled: **05/21/2024 1040** Project Name: **RACER Lansing GWS**

Date Received: **05/23/2024** Project Number: **30214036.0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		119	25-150
13C8_PFOS		106	25-150
13C8_PFOSA		109	10-150
13C9_PFNA		117	25-150
d5-EtFOSAA		150	25-150
d3-MeFOSAA		137	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE23018-025**

Description: **MW-19-112_052124** Matrix: **Aqueous**

Date Sampled: **05/21/2024 1220** Project Name: **RACER Lansing GWS**

Date Received: **05/23/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/11/2024 2330	OMNS	06/08/2024 2348	12768

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		80	4.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		80	6.6	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		80	16	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	80	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	80	8.7	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		80	21	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		80	4.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		80	7.5	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		80	9.3	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		40	4.1	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		40	7.8	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		40	5.0	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		40	7.1	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		40	6.1	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		40	5.9	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		40	5.5	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		40	6.0	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		40	5.2	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		40	4.7	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		40	4.5	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		40	6.9	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		40	4.6	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		40	8.3	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		40	5.4	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		40	6.0	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		40	5.3	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		40	6.3	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		40	20	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	189	25-150
13C2_6:2FTS	N	186	25-150
13C2_8:2FTS		116	25-150
13C2_PFDoA		93	25-150
13C2_PFTeDA		103	25-150
13C3_PFBS		110	25-150
13C3_PFHxS		141	25-150
13C3-HFPO-DA		113	25-150
13C4_PFBA		89	25-150
13C4_PFHpA		121	25-150
13C5_PFHxA		122	25-150
13C5_PFPeA		121	25-150
13C6_PFDA		108	25-150
13C7_PFUdA		109	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE23018-025**

Description: **MW-19-112_052124** Matrix: **Aqueous**

Date Sampled: **05/21/2024 1220** Project Name: **RACER Lansing GWS**

Date Received: **05/23/2024** Project Number: **30214036.0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		122	25-150
13C8_PFOS		108	25-150
13C8_PFOSA		113	10-150
13C9_PFNA		118	25-150
d5-EtFOSAA		112	25-150
d3-MeFOSAA		117	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
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J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE23018-026**

Description: **MW-19-113_052124** Matrix: **Aqueous**

Date Sampled: **05/21/2024 1255** Project Name: **RACER Lansing GWS**

Date Received: **05/23/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/11/2024 2340	OMNS	06/08/2024 2348	12768

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		8.1	0.49	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		8.1	0.67	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		8.1	1.6	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	8.1	2.0	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	8.1	0.89	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		8.1	2.1	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		8.1	0.49	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		8.1	0.76	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		8.1	0.94	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**1.6**	**J**	**4.1**	**0.42**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		4.1	0.79	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		4.1	0.51	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		4.1	0.72	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		4.1	0.62	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		4.1	0.60	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**1.2**	**J**	**4.1**	**0.56**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**2.3**	**J**	**4.1**	**0.61**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		4.1	0.53	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		4.1	0.48	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		4.1	0.45	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		4.1	0.70	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		4.1	0.47	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**3.1**	**J**	**4.1**	**0.84**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		4.1	0.55	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		4.1	0.61	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		4.1	0.54	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		4.1	0.63	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**3.5**	**J**	**4.1**	**2.0**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	166	25-150
13C2_6:2FTS	N	174	25-150
13C2_8:2FTS		128	25-150
13C2_PFDoA		73	25-150
13C2_PFTeDA		57	25-150
13C3_PFBS		109	25-150
13C3_PFHxS		123	25-150
13C3-HFPO-DA		107	25-150
13C4_PFBA		34	25-150
13C4_PFHpA		116	25-150
13C5_PFHxA		117	25-150
13C5_PFPeA		111	25-150
13C6_PFDA		105	25-150
13C7_PFUdA		99	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE23018-026**

Description: **MW-19-113_052124** Matrix: **Aqueous**

Date Sampled: **05/21/2024 1255** Project Name: **RACER Lansing GWS**

Date Received: **05/23/2024** Project Number: **30214036.0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		111	25-150
13C8_PFOS		103	25-150
13C8_PFOSA		126	10-150
13C9_PFNA		119	25-150
d5-EtFOSAA		107	25-150
d3-MeFOSAA		102	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE23018-027**

Description: **MW-18-100_052124** Matrix: **Aqueous**

Date Sampled: **05/21/2024 1540** Project Name: **RACER Lansing GWS**

Date Received: **05/23/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/11/2024 2351	OMNS	06/08/2024 2348	12768

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.4	0.45	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.4	0.61	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.4	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.4	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.4	0.81	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.4	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.4	0.45	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.4	0.70	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.4	0.86	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**1.6**	**J**	**3.7**	**0.38**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.7	0.72	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.7	0.46	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.7	0.66	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.7	0.57	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.7	0.55	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**2.4**	**J**	**3.7**	**0.51**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**11**		**3.7**	**0.56**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.7	0.49	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.7	0.44	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**1.9**	**J**	**3.7**	**0.41**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**4.8**		**3.7**	**0.64**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.7	0.43	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**2.9**	**J**	**3.7**	**0.77**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**3.0**	**J**	**3.7**	**0.50**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.7	0.56	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.7	0.49	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.7	0.58	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.7	1.9	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		150	25-150
13C2_6:2FTS	N	254	25-150
13C2_8:2FTS		141	25-150
13C2_PFDoA		99	25-150
13C2_PFTeDA		110	25-150
13C3_PFBS		127	25-150
13C3_PFHxS		141	25-150
13C3-HFPO-DA		122	25-150
13C4_PFBA		105	25-150
13C4_PFHpA		127	25-150
13C5_PFHxA		133	25-150
13C5_PFPeA		128	25-150
13C6_PFDA		114	25-150
13C7_PFUdA		111	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**
Laboratory ID: **ZE23018-027**
Description: **MW-18-100_052124**
Matrix: **Aqueous**
Date Sampled: **05/21/2024 1540**
Project Name: **RACER Lansing GWS**
Date Received: **05/23/2024**
Project Number: **30214036.0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		135	25-150
13C8_PFOS		110	25-150
13C8_PFOSA		126	10-150
13C9_PFNA		128	25-150
d5-EtFOSAA		113	25-150
d3-MeFOSAA		121	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE23018-028**

Description: **EB-05_052124** Matrix: **Aqueous**

Date Sampled: **05/21/2024 1225** Project Name: **RACER Lansing GWS**

Date Received: **05/23/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/12/2024 0001	OMNS	06/08/2024 2348	12768

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.2	0.44	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.2	0.60	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.2	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.2	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.2	0.79	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.2	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND	Q	7.2	0.44	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.2	0.68	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.2	0.84	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.6	0.38	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.6	0.70	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND	Q	3.6	0.45	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.6	0.64	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.6	0.55	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.6	0.54	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND	Q	3.6	0.50	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		3.6	0.54	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.6	0.48	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.6	0.43	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.6	0.40	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.6	0.62	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.6	0.42	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.6	0.75	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.6	0.49	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.6	0.54	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.6	0.48	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.6	0.57	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.6	1.8	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		139	25-150
13C2_6:2FTS	N	212	25-150
13C2_8:2FTS		144	25-150
13C2_PFDoA		109	25-150
13C2_PFTeDA		134	25-150
13C3_PFBS		133	25-150
13C3_PFHxS	N	154	25-150
13C3-HFPO-DA		134	25-150
13C4_PFBA		130	25-150
13C4_PFHpA		131	25-150
13C5_PFHxA		149	25-150
13C5_PFPeA		128	25-150
13C6_PFDA		124	25-150
13C7_PFUdA		129	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
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L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**
Laboratory ID: **ZE23018-028**
Description: **EB-05_052124**
Matrix: **Aqueous**
Date Sampled: **05/21/2024 1225**
Project Name: **RACER Lansing GWS**
Date Received: **05/23/2024**
Project Number: **30214036.0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		143	25-150
13C8_PFOS		128	25-150
13C8_PFOSA		126	10-150
13C9_PFNA		143	25-150
d5-EtFOSAA		136	25-150
d3-MeFOSAA		148	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE23018-029**

Description: **DUP-06_052024** Matrix: **Aqueous**

Date Sampled: **05/20/2024** Project Name: **RACER Lansing GWS**

Date Received: **05/23/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/12/2024 0012	OMNS	06/08/2024 2348	12768
2	SOP SPE	PFAS by ID SOP	5	06/13/2024 1218	OMNS	06/08/2024 2348	12768

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.8	0.47	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.8	0.65	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND	Q	7.8	1.6	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.8	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.8	0.85	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.8	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.8	0.47	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.8	0.73	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.8	0.91	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.9	0.40	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.9	0.76	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	**375-92-8**	**PFAS by ID SOP**	**18**		**3.9**	**0.49**	**ng/L**	**1**
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.9	0.69	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	**754-91-6**	**PFAS by ID SOP**	**0.85**	**J**	**3.9**	**0.60**	**ng/L**	**1**
Perfluoro-1-pentanesulfonic acid (PFPeS)	**2706-91-4**	**PFAS by ID SOP**	**2.2**	**J**	**3.9**	**0.58**	**ng/L**	**1**
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**16**		**3.9**	**0.54**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND	Q	3.9	0.58	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	**335-76-2**	**PFAS by ID SOP**	**2.0**	**J**	**3.9**	**0.51**	**ng/L**	**1**
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.9	0.46	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**3.8**	**J**	**3.9**	**0.44**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**4.8**		**3.9**	**0.67**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**1.5**	**J**	**3.9**	**0.45**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**14**		**3.9**	**0.81**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND	Q	3.9	0.53	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.9	0.58	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.9	0.52	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.9	0.61	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**1100**		**19**	**9.7**	**ng/L**	**2**

Surrogate	Run 1 Q	Run 1 % Recovery	Run 1 Acceptance Limits	Run 2 Q	Run 2 % Recovery	Run 2 Acceptance Limits
13C2_4:2FTS	N	287	25-150		135	25-150
13C2_6:2FTS	N	281	25-150		147	25-150
13C2_8:2FTS	N	272	25-150		112	25-150
13C2_PFDoA		96	25-150		87	25-150
13C2_PFTeDA		98	25-150		90	25-150
13C3_PFBS		103	25-150		93	25-150
13C3_PFHxS		131	25-150		87	25-150
13C3-HFPO-DA		90	25-150		77	25-150
13C4_PFBA	N	3.0	25-150	N	2.0	25-150
13C4_PFHpA		104	25-150		88	25-150
13C5_PFHxA		108	25-150		98	25-150
13C5_PFPeA	N	18	25-150	N	15	25-150
13C6_PFDA		114	25-150		103	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
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S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE23018-029**

Description: **DUP-06_052024** Matrix: **Aqueous**

Date Sampled: **05/20/2024** Project Name: **RACER Lansing GWS**

Date Received: **05/23/2024** Project Number: **30214036.0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		119	25-150		77	25-150
13C8_PFOA		118	25-150		97	25-150
13C8_PFOS		94	25-150		87	25-150
13C8_PFOSA		112	10-150		109	10-150
13C9_PFNA		123	25-150		99	25-150
d5-EtFOSAA		139	25-150		100	25-150
d3-MeFOSAA		145	25-150		97	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE23018-030**

Description: **MW-19-114_052024** Matrix: **Aqueous**

Date Sampled: **05/20/2024 1010** Project Name: **RACER Lansing GWS**

Date Received: **05/23/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/12/2024 0023	OMNS	06/08/2024 2348	12768

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.4	0.45	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.4	0.61	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.4	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.4	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.4	0.81	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.4	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.4	0.45	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.4	0.70	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.4	0.86	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**1.3**	**J**	**3.7**	**0.38**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.7	0.72	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.7	0.46	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.7	0.66	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.7	0.57	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.7	0.55	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**0.81**	**J**	**3.7**	**0.51**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**5.5**		**3.7**	**0.56**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.7	0.49	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.7	0.44	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.7	0.41	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.7	0.64	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.7	0.43	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.7	0.77	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.7	0.50	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.7	0.56	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.7	0.49	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.7	0.58	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**2.6**	**J**	**3.7**	**1.9**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		127	25-150
13C2_6:2FTS	N	156	25-150
13C2_8:2FTS		98	25-150
13C2_PFDoA		86	25-150
13C2_PFTeDA		100	25-150
13C3_PFBS		100	25-150
13C3_PFHxS		121	25-150
13C3-HFPO-DA		102	25-150
13C4_PFBA		91	25-150
13C4_PFHpA		111	25-150
13C5_PFHxA		111	25-150
13C5_PFPeA		110	25-150
13C6_PFDA		95	25-150
13C7_PFUdA		93	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE23018-030**

Description: **MW-19-114_052024** Matrix: **Aqueous**

Date Sampled: **05/20/2024 1010** Project Name: **RACER Lansing GWS**

Date Received: **05/23/2024** Project Number: **30214036.0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		120	25-150
13C8_PFOS		102	25-150
13C8_PFOSA		115	10-150
13C9_PFNA		110	25-150
d5-EtFOSAA		94	25-150
d3-MeFOSAA		101	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE23018-031**

Description: **MW-18-104_052024** Matrix: **Aqueous**

Date Sampled: **05/20/2024 1140** Project Name: **RACER Lansing GWS**

Date Received: **05/23/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/12/2024 0033	OMNS	06/08/2024 2348	12768

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.7	0.46	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.7	0.64	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.7	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.7	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.7	0.84	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.7	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.7	0.47	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.7	0.72	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.7	0.90	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**0.97**	**J**	**3.8**	**0.40**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.8	0.75	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.8	0.48	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.8	0.68	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.8	0.59	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.8	0.57	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**0.61**	**J**	**3.8**	**0.53**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		3.8	0.58	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.8	0.51	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.8	0.45	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.8	0.43	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.8	0.66	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.8	0.44	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.8	0.80	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.8	0.52	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.8	0.58	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.8	0.51	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.8	0.60	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**3.6**	**J**	**3.8**	**1.9**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		145	25-150
13C2_6:2FTS	N	158	25-150
13C2_8:2FTS		121	25-150
13C2_PFDoA		90	25-150
13C2_PFTeDA		97	25-150
13C3_PFBS		120	25-150
13C3_PFHxS		143	25-150
13C3-HFPO-DA		119	25-150
13C4_PFBA		88	25-150
13C4_PFHpA		132	25-150
13C5_PFHxA		115	25-150
13C5_PFPeA		116	25-150
13C6_PFDA		110	25-150
13C7_PFUdA		105	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE23018-031**

Description: **MW-18-104_052024** Matrix: **Aqueous**

Date Sampled: **05/20/2024 1140** Project Name: **RACER Lansing GWS**

Date Received: **05/23/2024** Project Number: **30214036.0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		133	25-150
13C8_PFOS		110	25-150
13C8_PFOSA		125	10-150
13C9_PFNA		120	25-150
d5-EtFOSAA		104	25-150
d3-MeFOSAA		117	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE23018-032**

Description: **MW-18-102_052024** Matrix: **Aqueous**

Date Sampled: **05/20/2024 1325** Project Name: **RACER Lansing GWS**

Date Received: **05/23/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/12/2024 0044	OMNS	06/08/2024 2348	12768

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.8	0.47	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.8	0.65	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.8	1.6	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.8	2.0	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.8	0.85	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.8	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.8	0.47	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.8	0.73	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.8	0.91	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.9	0.41	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.9	0.76	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.9	0.49	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.9	0.70	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.9	0.60	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.9	0.58	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.9	0.54	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		3.9	0.59	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.9	0.51	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.9	0.46	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.9	0.44	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.9	0.67	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.9	0.45	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.9	0.81	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.9	0.53	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.9	0.59	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.9	0.52	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.9	0.61	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.9	2.0	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		128	25-150
13C2_6:2FTS	N	157	25-150
13C2_8:2FTS		106	25-150
13C2_PFDoA		90	25-150
13C2_PFTeDA		100	25-150
13C3_PFBS		118	25-150
13C3_PFHxS		139	25-150
13C3-HFPO-DA		107	25-150
13C4_PFBA		97	25-150
13C4_PFHpA		121	25-150
13C5_PFHxA		113	25-150
13C5_PFPeA		117	25-150
13C6_PFDA		105	25-150
13C7_PFUdA		102	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**
Laboratory ID: **ZE23018-032**
Description: **MW-18-102_052024**
Matrix: **Aqueous**
Date Sampled: **05/20/2024 1325**
Project Name: **RACER Lansing GWS**
Date Received: **05/23/2024**
Project Number: **30214036.0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		110	25-150
13C8_PFOS		107	25-150
13C8_PFOSA		118	10-150
13C9_PFNA		121	25-150
d5-EtFOSAA		107	25-150
d3-MeFOSAA		105	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE23018-033**

Description: **MW-18-98_052024** Matrix: **Aqueous**

Date Sampled: **05/20/2024 1620** Project Name: **RACER Lansing GWS**

Date Received: **05/23/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/12/2024 0055	OMNS	06/08/2024 2348	12768

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.7	0.46	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.7	0.64	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.7	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.7	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.7	0.84	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.7	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.7	0.46	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.7	0.72	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.7	0.90	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**0.68**	**J**	**3.8**	**0.40**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.8	0.75	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.8	0.48	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.8	0.68	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.8	0.59	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.8	0.57	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**0.60**	**J**	**3.8**	**0.53**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**8.7**		**3.8**	**0.58**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.8	0.50	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.8	0.45	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**1.8**	**J**	**3.8**	**0.43**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**2.7**	**J**	**3.8**	**0.66**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**1.7**	**J**	**3.8**	**0.44**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**2.5**	**J**	**3.8**	**0.80**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**1.5**	**J**	**3.8**	**0.52**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.8	0.58	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.8	0.51	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.8	0.60	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**140**		**3.8**	**1.9**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	238	25-150
13C2_6:2FTS	N	247	25-150
13C2_8:2FTS		113	25-150
13C2_PFDoA		96	25-150
13C2_PFTeDA		98	25-150
13C3_PFBS		104	25-150
13C3_PFHxS		127	25-150
13C3-HFPO-DA		108	25-150
13C4_PFBA		92	25-150
13C4_PFHpA		116	25-150
13C5_PFHxA		115	25-150
13C5_PFPeA		113	25-150
13C6_PFDA		111	25-150
13C7_PFUdA		106	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**
Laboratory ID: **ZE23018-033**
Description: **MW-18-98_052024**
Matrix: **Aqueous**
Date Sampled: **05/20/2024 1620**
Project Name: **RACER Lansing GWS**
Date Received: **05/23/2024**
Project Number: **30214036.0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		132	25-150
13C8_PFOS		107	25-150
13C8_PFOSA		112	10-150
13C9_PFNA		116	25-150
d5-EtFOSAA		106	25-150
d3-MeFOSAA		123	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE23018-034**

Description: **MW-18-99_052024** Matrix: **Aqueous**

Date Sampled: **05/20/2024 1740** Project Name: **RACER Lansing GWS**

Date Received: **05/23/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/12/2024 0105	OMNS	06/08/2024 2348	12768

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.5	0.45	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.5	0.62	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.5	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.5	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.5	0.82	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.5	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.5	0.45	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.5	0.70	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.5	0.87	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**1.3**	**J**	**3.8**	**0.39**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.8	0.73	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	**375-92-8**	**PFAS by ID SOP**	**0.64**	**J**	**3.8**	**0.47**	**ng/L**	**1**
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.8	0.67	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.8	0.57	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.8	0.56	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**1.6**	**J**	**3.8**	**0.52**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**12**		**3.8**	**0.56**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	**335-76-2**	**PFAS by ID SOP**	**0.84**	**J**	**3.8**	**0.49**	**ng/L**	**1**
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.8	0.44	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**2.6**	**J**	**3.8**	**0.42**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**4.6**		**3.8**	**0.65**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**1.0**	**J**	**3.8**	**0.43**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**3.9**		**3.8**	**0.78**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**3.6**	**J**	**3.8**	**0.51**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.8	0.56	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.8	0.50	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.8	0.59	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**47**		**3.8**	**1.9**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	216	25-150
13C2_6:2FTS	N	222	25-150
13C2_8:2FTS		111	25-150
13C2_PFDoA		88	25-150
13C2_PFTeDA		97	25-150
13C3_PFBS		100	25-150
13C3_PFHxS		127	25-150
13C3-HFPO-DA		104	25-150
13C4_PFBA		86	25-150
13C4_PFHpA		106	25-150
13C5_PFHxA		114	25-150
13C5_PFPeA		109	25-150
13C6_PFDA		97	25-150
13C7_PFUdA		106	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**
Laboratory ID: **ZE23018-034**
Description: **MW-18-99_052024**
Matrix: **Aqueous**
Date Sampled: **05/20/2024 1740**
Project Name: **RACER Lansing GWS**
Date Received: **05/23/2024**
Project Number: **30214036.0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		133	25-150
13C8_PFOS		99	25-150
13C8_PFOSA		106	10-150
13C9_PFNA		110	25-150
d5-EtFOSAA		105	25-150
d3-MeFOSAA		114	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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QC Summary

PFAS by LC/MS/MS - MB

Sample ID: ZQ12606-001
Batch: 12606
Analytical Method: PFAS by ID SOP
Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 06/06/2024 1221

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
9Cl-PF3ONS	ND		1	8.0	0.48	ng/L	06/07/2024 1433
11Cl-PF3OUdS	ND		1	8.0	0.66	ng/L	06/07/2024 1433
8:2 FTS	ND		1	8.0	1.6	ng/L	06/07/2024 1433
6:2 FTS	ND		1	8.0	2.0	ng/L	06/07/2024 1433
4:2 FTS	ND		1	8.0	0.87	ng/L	06/07/2024 1433
GenX	ND		1	8.0	2.1	ng/L	06/07/2024 1433
ADONA	ND		1	8.0	0.48	ng/L	06/07/2024 1433
EtFOSAA	ND		1	8.0	0.75	ng/L	06/07/2024 1433
MeFOSAA	ND		1	8.0	0.93	ng/L	06/07/2024 1433
PFBS	ND		1	4.0	0.41	ng/L	06/07/2024 1433
PFDS	ND		1	4.0	0.78	ng/L	06/07/2024 1433
PFHpS	ND		1	4.0	0.50	ng/L	06/07/2024 1433
PFNS	ND		1	4.0	0.71	ng/L	06/07/2024 1433
PFOSA	ND		1	4.0	0.61	ng/L	06/07/2024 1433
PFPeS	ND		1	4.0	0.59	ng/L	06/07/2024 1433
PFHxS	ND		1	4.0	0.55	ng/L	06/07/2024 1433
PFBA	ND		1	4.0	0.60	ng/L	06/07/2024 1433
PFDA	ND		1	4.0	0.52	ng/L	06/07/2024 1433
PFDoA	ND		1	4.0	0.47	ng/L	06/07/2024 1433
PFHpA	ND		1	4.0	0.45	ng/L	06/07/2024 1433
PFHxA	ND		1	4.0	0.69	ng/L	06/07/2024 1433
PFNA	ND		1	4.0	0.46	ng/L	06/07/2024 1433
PFOA	ND		1	4.0	0.83	ng/L	06/07/2024 1433
PFPeA	ND		1	4.0	0.54	ng/L	06/07/2024 1433
PFTeDA	ND		1	4.0	0.60	ng/L	06/07/2024 1433
PFTrDA	ND		1	4.0	0.53	ng/L	06/07/2024 1433
PFUdA	ND		1	4.0	0.63	ng/L	06/07/2024 1433
PFOS	ND		1	4.0	2.0	ng/L	06/07/2024 1433

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		108	25-150
13C2_6:2FTS	N	225	25-150
13C2_8:2FTS		95	25-150
13C2_PFDoA		100	25-150
13C2_PFTeDA		88	25-150
13C3_PFBS		98	25-150
13C3_PFHxS		98	25-150
13C3-HFPO-DA		102	25-150
13C4_PFBA		102	25-150
13C4_PFHpA		98	25-150
13C5_PFHxA		97	25-150
13C5_PFPeA		94	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: ZQ12606-001
Batch: 12606
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 06/06/2024 1221

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		94	25-150
13C7_PFUdA		86	25-150
13C8_PFOA		100	25-150
13C8_PFOS		95	25-150
13C8_PFOSA		99	10-150
13C9_PFNA		97	25-150
d5-EtFOSAA		99	25-150
d3-MeFOSAA		99	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ12606-002
Batch: 12606
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 06/06/2024 1221

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	16		1	108	50-150	06/07/2024 1444
11Cl-PF3OUdS	15	16		1	107	50-150	06/07/2024 1444
8:2 FTS	15	18		1	115	50-150	06/07/2024 1444
6:2 FTS	15	15		1	100	50-150	06/07/2024 1444
4:2 FTS	15	18		1	121	50-150	06/07/2024 1444
GenX	32	32		1	100	50-150	06/07/2024 1444
ADONA	15	16		1	104	50-150	06/07/2024 1444
EtFOSAA	16	17		1	106	50-150	06/07/2024 1444
MeFOSAA	16	17		1	104	50-150	06/07/2024 1444
PFBS	14	15		1	104	50-150	06/07/2024 1444
PFDS	15	16		1	107	50-150	06/07/2024 1444
PFHpS	15	15		1	101	50-150	06/07/2024 1444
PFNS	15	17		1	110	50-150	06/07/2024 1444
PFOSA	16	16		1	103	50-150	06/07/2024 1444
PFPeS	15	14		1	93	50-150	06/07/2024 1444
PFHxS	15	15		1	104	50-150	06/07/2024 1444
PFBA	16	16		1	99	50-150	06/07/2024 1444
PFDA	16	16		1	102	50-150	06/07/2024 1444
PFDoA	16	14		1	89	50-150	06/07/2024 1444
PFHpA	16	16		1	101	50-150	06/07/2024 1444
PFHxA	16	16		1	101	50-150	06/07/2024 1444
PFNA	16	17		1	104	50-150	06/07/2024 1444
PFOA	16	15		1	93	50-150	06/07/2024 1444
PFPeA	16	17		1	106	50-150	06/07/2024 1444
PFTeDA	16	15		1	92	50-150	06/07/2024 1444
PFTrDA	16	13		1	78	50-150	06/07/2024 1444
PFUdA	16	17		1	108	50-150	06/07/2024 1444
PFOS	15	16		1	106	50-150	06/07/2024 1444

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		97	25-150
13C2_6:2FTS	N	163	25-150
13C2_8:2FTS		92	25-150
13C2_PFDoA		94	25-150
13C2_PFTeDA		74	25-150
13C3_PFBS		99	25-150
13C3_PFHxS		99	25-150
13C3-HFPO-DA		102	25-150
13C4_PFBA		103	25-150
13C4_PFHpA		94	25-150
13C5_PFHxA		103	25-150
13C5_PFPeA		98	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ12606-002
Batch: 12606
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 06/06/2024 1221

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		93	25-150
13C7_PFUdA		85	25-150
13C8_PFOA		104	25-150
13C8_PFOS		91	25-150
13C8_PFOSA		98	10-150
13C9_PFNA		101	25-150
d5-EtFOSAA		96	25-150
d3-MeFOSAA		94	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID: ZE23018-005MS
Batch: 12606
Analytical Method: PFAS by ID SOP
Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 06/06/2024 1221

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	ND	13	12		1	97	50-150	06/07/2024 1651
11Cl-PF3OUdS	ND	13	13		1	104	50-150	06/07/2024 1651
8:2 FTS	ND	13	14		1	104	50-150	06/07/2024 1651
6:2 FTS	ND	13	15		1	117	50-150	06/07/2024 1651
4:2 FTS	ND	13	12		1	94	50-150	06/07/2024 1651
GenX	ND	27	30		1	109	50-150	06/07/2024 1651
ADONA	ND	13	14		1	109	50-150	06/07/2024 1651
EtFOSAA	ND	14	13		1	92	50-150	06/07/2024 1651
MeFOSAA	ND	14	14		1	105	50-150	06/07/2024 1651
PFBS	1.4	12	14		1	102	50-150	06/07/2024 1651
PFDS	ND	13	14		1	107	50-150	06/07/2024 1651
PFHpS	ND	13	13		1	99	50-150	06/07/2024 1651
PFNS	ND	13	14		1	104	50-150	06/07/2024 1651
PFOSA	ND	14	14		1	99	50-150	06/07/2024 1651
PFPeS	ND	13	15		1	120	50-150	06/07/2024 1651
PFHxS	1.6	13	16		1	113	50-150	06/07/2024 1651
PFBA	2.2	14	16		1	102	50-150	06/07/2024 1651
PFDA	ND	14	14		1	102	50-150	06/07/2024 1651
PFDoA	ND	14	13		1	98	50-150	06/07/2024 1651
PFHpA	0.87	14	15		1	106	50-150	06/07/2024 1651
PFHxA	1.9	14	15		1	98	50-150	06/07/2024 1651
PFNA	ND	14	14		1	99	50-150	06/07/2024 1651
PFOA	6.5	14	20		1	97	50-150	06/07/2024 1651
PFPeA	0.84	14	15		1	102	50-150	06/07/2024 1651
PFTeDA	ND	14	14		1	101	50-150	06/07/2024 1651
PFTrDA	ND	14	13		1	92	50-150	06/07/2024 1651
PFUdA	ND	14	16		1	116	50-150	06/07/2024 1651
PFOS	ND	13	15		1	118	50-150	06/07/2024 1651

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS	N	191	25-150
13C2_6:2FTS		138	25-150
13C2_8:2FTS		82	25-150
13C2_PFDoA		91	25-150
13C2_PFTeDA		85	25-150
13C3_PFBS		89	25-150
13C3_PFHxS		94	25-150
13C3-HFPO-DA		98	25-150
13C4_PFBA		57	25-150
13C4_PFHpA		99	25-150
13C5_PFHxA		107	25-150
13C5_PFPeA		93	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID: ZE23018-005MS
Batch: 12606
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 06/06/2024 1221

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		94	25-150
13C7_PFUdA		83	25-150
13C8_PFOA		113	25-150
13C8_PFOS		95	25-150
13C8_PFOSA		101	10-150
13C9_PFNA		97	25-150
d5-EtFOSAA		101	25-150
d3-MeFOSAA		94	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - Duplicate

Sample ID: ZE23018-010DU
Batch: 12606
Analytical Method: PFAS by ID SOP
Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 06/06/2024 1221

Parameter	Sample Amount (ng/L)	Result (ng/L)	Q	Dil	% RPD	%RPD Limit	Analysis Date
9Cl-PF3ONS	ND	ND		10	0.00	20	06/07/2024 1755
11Cl-PF3OUdS	ND	ND		10	0.00	20	06/07/2024 1755
8:2 FTS	ND	ND		10	0.00	20	06/07/2024 1755
6:2 FTS	ND	ND		10	0.00	20	06/07/2024 1755
4:2 FTS	ND	ND		10	0.00	20	06/07/2024 1755
GenX	ND	ND		10	0.00	20	06/07/2024 1755
ADONA	ND	ND		10	0.00	20	06/07/2024 1755
EtFOSAA	ND	ND		10	0.00	20	06/07/2024 1755
MeFOSAA	ND	ND		10	0.00	20	06/07/2024 1755
PFBS	ND	ND		10	0.00	20	06/07/2024 1755
PFDS	ND	ND		10	0.00	20	06/07/2024 1755
PFHpS	10	14	J,+	10	33	20	06/07/2024 1755
PFNS	ND	ND		10	0.00	20	06/07/2024 1755
PFOSA	ND	ND		10	0.00	20	06/07/2024 1755
PFPeS	ND	ND		10	0.00	20	06/07/2024 1755
PFHxS	14	14	J	10	1.1	20	06/07/2024 1755
PFBA	14	15	J	10	6.1	20	06/07/2024 1755
PFDA	ND	ND		10	0.00	20	06/07/2024 1755
PFDoA	ND	ND		10	0.00	20	06/07/2024 1755
PFHpA	6.2	7.4	J	10	18	20	06/07/2024 1755
PFHxA	9.1	ND		10	0.00	20	06/07/2024 1755
PFNA	4.4	4.7	J	10	7.0	20	06/07/2024 1755
PFOA	26	25	J	10	7.2	20	06/07/2024 1755
PFPeA	7.9	7.1	J	10	9.5	20	06/07/2024 1755
PFTeDA	ND	ND		10	0.00	20	06/07/2024 1755
PFTrDA	ND	ND		10	0.00	20	06/07/2024 1755
PFUdA	ND	ND		10	0.00	20	06/07/2024 1755
PFOS	1000	970		10	7.6	20	06/07/2024 1755

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS	N	165	25-150
13C2_6:2FTS		126	25-150
13C2_8:2FTS		104	25-150
13C2_PFDoA		101	25-150
13C2_PFTeDA		93	25-150
13C3_PFBS		111	25-150
13C3_PFHxS		117	25-150
13C3-HFPO-DA		121	25-150
13C4_PFBA		110	25-150
13C4_PFHpA		107	25-150
13C5_PFHxA		118	25-150
13C5_PFPeA		121	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - Duplicate

Sample ID: ZE23018-010DU
Batch: 12606
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 06/06/2024 1221

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		106	25-150
13C7_PFUdA		109	25-150
13C8_PFOA		120	25-150
13C8_PFOS		112	25-150
13C8_PFOSA		124	10-150
13C9_PFNA		117	25-150
d5-EtFOSAA		115	25-150
d3-MeFOSAA		108	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: ZQ12768-001
Batch: 12768
Analytical Method: PFAS by ID SOP
Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 06/08/2024 2348

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
9Cl-PF3ONS	ND		1	8.0	0.48	ng/L	06/11/2024 2101
11Cl-PF3OUdS	ND		1	8.0	0.66	ng/L	06/11/2024 2101
8:2 FTS	ND		1	8.0	1.6	ng/L	06/11/2024 2101
6:2 FTS	ND		1	8.0	2.0	ng/L	06/11/2024 2101
4:2 FTS	ND		1	8.0	0.87	ng/L	06/11/2024 2101
GenX	ND		1	8.0	2.1	ng/L	06/11/2024 2101
ADONA	ND		1	8.0	0.48	ng/L	06/11/2024 2101
EtFOSAA	ND		1	8.0	0.75	ng/L	06/11/2024 2101
MeFOSAA	ND		1	8.0	0.93	ng/L	06/11/2024 2101
PFBS	ND		1	4.0	0.41	ng/L	06/11/2024 2101
PFDS	ND		1	4.0	0.78	ng/L	06/11/2024 2101
PFHpS	ND		1	4.0	0.50	ng/L	06/11/2024 2101
PFNS	ND		1	4.0	0.71	ng/L	06/11/2024 2101
PFOSA	ND		1	4.0	0.61	ng/L	06/11/2024 2101
PFPeS	ND		1	4.0	0.59	ng/L	06/11/2024 2101
PFHxS	ND		1	4.0	0.55	ng/L	06/11/2024 2101
PFBA	ND		1	4.0	0.60	ng/L	06/11/2024 2101
PFDA	ND		1	4.0	0.52	ng/L	06/11/2024 2101
PFDoA	ND		1	4.0	0.47	ng/L	06/11/2024 2101
PFHpA	ND		1	4.0	0.45	ng/L	06/11/2024 2101
PFHxA	ND		1	4.0	0.69	ng/L	06/11/2024 2101
PFNA	ND		1	4.0	0.46	ng/L	06/11/2024 2101
PFOA	ND		1	4.0	0.83	ng/L	06/11/2024 2101
PFPeA	ND		1	4.0	0.54	ng/L	06/11/2024 2101
PFTeDA	ND		1	4.0	0.60	ng/L	06/11/2024 2101
PFTrDA	ND		1	4.0	0.53	ng/L	06/11/2024 2101
PFUdA	ND		1	4.0	0.63	ng/L	06/11/2024 2101
PFOS	ND		1	4.0	2.0	ng/L	06/11/2024 2101

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS	N	277	25-150
13C2_6:2FTS	N	303	25-150
13C2_8:2FTS	N	254	25-150
13C2_PFDoA		112	25-150
13C2_PFTeDA		118	25-150
13C3_PFBS		120	25-150
13C3_PFHxS		130	25-150
13C3-HFPO-DA		112	25-150
13C4_PFBA		121	25-150
13C4_PFHpA		123	25-150
13C5_PFHxA		119	25-150
13C5_PFPeA		118	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: ZQ12768-001
Batch: 12768
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 06/08/2024 2348

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		113	25-150
13C7_PFUdA		124	25-150
13C8_PFOA		128	25-150
13C8_PFOS		111	25-150
13C8_PFOSA		117	10-150
13C9_PFNA		124	25-150
d5-EtFOSAA	N	161	25-150
d3-MeFOSAA	N	183	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ12768-002
Batch: 12768
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 06/08/2024 2348

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	15		1	100	50-150	06/11/2024 2111
11Cl-PF3OUdS	15	14		1	94	50-150	06/11/2024 2111
8:2 FTS	15	18		1	115	50-150	06/11/2024 2111
6:2 FTS	15	14		1	95	50-150	06/11/2024 2111
4:2 FTS	15	20		1	131	50-150	06/11/2024 2111
GenX	32	32		1	98	50-150	06/11/2024 2111
ADONA	15	17		1	113	50-150	06/11/2024 2111
EtFOSAA	16	14		1	89	50-150	06/11/2024 2111
MeFOSAA	16	17		1	104	50-150	06/11/2024 2111
PFBS	14	14		1	102	50-150	06/11/2024 2111
PFDS	15	16		1	104	50-150	06/11/2024 2111
PFHpS	15	16		1	107	50-150	06/11/2024 2111
PFNS	15	15		1	99	50-150	06/11/2024 2111
PFOSA	16	16		1	102	50-150	06/11/2024 2111
PFPeS	15	15		1	101	50-150	06/11/2024 2111
PFHxS	15	16		1	108	50-150	06/11/2024 2111
PFBA	16	18		1	110	50-150	06/11/2024 2111
PFDA	16	15		1	94	50-150	06/11/2024 2111
PFDoA	16	17		1	105	50-150	06/11/2024 2111
PFHpA	16	16		1	98	50-150	06/11/2024 2111
PFHxA	16	17		1	108	50-150	06/11/2024 2111
PFNA	16	17		1	106	50-150	06/11/2024 2111
PFOA	16	15		1	95	50-150	06/11/2024 2111
PFPeA	16	15		1	94	50-150	06/11/2024 2111
PFTeDA	16	16		1	101	50-150	06/11/2024 2111
PFTrDA	16	17		1	105	50-150	06/11/2024 2111
PFUdA	16	17		1	109	50-150	06/11/2024 2111
PFOS	15	15		1	101	50-150	06/11/2024 2111

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS	N	215	25-150
13C2_6:2FTS	N	336	25-150
13C2_8:2FTS	N	178	25-150
13C2_PFDoA		100	25-150
13C2_PFTeDA		105	25-150
13C3_PFBS		116	25-150
13C3_PFHxS		130	25-150
13C3-HFPO-DA		109	25-150
13C4_PFBA		119	25-150
13C4_PFHpA		125	25-150
13C5_PFHxA		119	25-150
13C5_PFPeA		122	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ12768-002
Batch: 12768
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 06/08/2024 2348

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		119	25-150
13C7_PFUdA		112	25-150
13C8_PFOA		139	25-150
13C8_PFOS		108	25-150
13C8_PFOSA		114	10-150
13C9_PFNA		126	25-150
d5-EtFOSAA		147	25-150
d3-MeFOSAA		144	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID: ZE23018-018MS
Batch: 12768
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 06/08/2024 2348

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	ND	12	12		50	96	50-150	06/11/2024 2143
11Cl-PF3OUdS	ND	13	8.9		50	71	50-150	06/11/2024 2143
8:2 FTS	ND	13	14		50	113	50-150	06/11/2024 2143
6:2 FTS	ND	15	ND	N	50	0.00	50-150	06/11/2024 2143
4:2 FTS	ND	12	9.5		50	76	50-150	06/11/2024 2143
GenX	ND	27	32		50	121	50-150	06/11/2024 2143
ADONA	ND	13	11		50	84	50-150	06/11/2024 2143
EtFOSAA	ND	13	16		50	122	50-150	06/11/2024 2143
MeFOSAA	ND	13	12		50	92	50-150	06/11/2024 2143
PFBS	120	12	130		50	65	50-150	06/11/2024 2143
PFDS	ND	15	ND	N	50	0.00	50-150	06/11/2024 2143
PFHpS	400	13	400	N	50	-8.1	50-150	06/11/2024 2143
PFNS	ND	13	7.8		50	61	50-150	06/11/2024 2143
PFOSA	ND	16	ND	N	50	0.00	50-150	06/11/2024 2143
PFPeS	390	13	360	N	50	-206	50-150	06/11/2024 2143
PFHxS	1900	12	2000	N	50	176	50-150	06/11/2024 2143
PFBA	ND	13	34		50	100	50-150	06/11/2024 2143
PFDA	ND	16	ND	N	50	0.00	50-150	06/11/2024 2143
PFDoA	ND	13	11		50	82	50-150	06/11/2024 2143
PFHpA	23	13	35		50	88	50-150	06/11/2024 2143
PFHxA	49	13	60		50	83	50-150	06/11/2024 2143
PFNA	ND	13	15		50	112	50-150	06/11/2024 2143
PFOA	130	13	120	N	50	-87	50-150	06/11/2024 2143
PFPeA	ND	13	34		50	128	50-150	06/11/2024 2143
PFTeDA	ND	13	12		50	92	50-150	06/11/2024 2143
PFTrDA	ND	13	12		50	87	50-150	06/11/2024 2143
PFUdA	ND	13	11		50	79	50-150	06/11/2024 2143
PFOS	11000	12	12000	N	50	7280	50-150	06/11/2024 2143

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS	N	220	25-150
13C2_6:2FTS		133	25-150
13C2_8:2FTS	N	155	25-150
13C2_PFDoA		117	25-150
13C2_PFTeDA		128	25-150
13C3_PFBS		119	25-150
13C3_PFHxS		142	25-150
13C3-HFPO-DA		125	25-150
13C4_PFBA		125	25-150
13C4_PFHpA		132	25-150
13C5_PFHxA		127	25-150
13C5_PFPeA		128	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID: ZE23018-018MS
Batch: 12768
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 06/08/2024 2348

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		123	25-150
13C7_PFUdA		127	25-150
13C8_PFOA		111	25-150
13C8_PFOS		116	25-150
13C8_PFOSA		132	10-150
13C9_PFNA		126	25-150
d5-EtFOSAA		124	25-150
d3-MeFOSAA		144	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MSD

Sample ID: ZE23018-018MD
Batch: 12768
Analytical Method: PFAS by ID SOP
Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 06/08/2024 2348

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
9Cl-PF3ONS	ND	13	14		50	107	17	50-150	30	06/11/2024 2154
11Cl-PF3OUdS	ND	13	14	+	50	101	42	50-150	30	06/11/2024 2154
8:2 FTS	ND	15	ND	N,+	50	0.00	200	50-150	30	06/11/2024 2154
6:2 FTS	ND	15	ND	N	50	0.00	0.00	50-150	30	06/11/2024 2154
4:2 FTS	ND	13	14	+	50	108	40	50-150	30	06/11/2024 2154
GenX	ND	28	37		50	129	12	50-150	30	06/11/2024 2154
ADONA	ND	13	20	+	50	148	61	50-150	30	06/11/2024 2154
EtFOSAA	ND	14	22	N	50	152	28	50-150	30	06/11/2024 2154
MeFOSAA	ND	16	ND	N,+	50	0.00	200	50-150	30	06/11/2024 2154
PFBS	120	13	140		50	142	7.6	50-150	30	06/11/2024 2154
PFDS	ND	14	14	+	50	105	200	50-150	30	06/11/2024 2154
PFHpS	400	14	420		50	134	4.7	50-150	30	06/11/2024 2154
PFNS	ND	14	13	+	50	93	48	50-150	30	06/11/2024 2154
PFOSA	ND	16	ND	N	50	0.00	0.00	50-150	30	06/11/2024 2154
PFPeS	390	13	380	N	50	-24	6.1	50-150	30	06/11/2024 2154
PFHxS	1900	13	2000	N	50	522	2.3	50-150	30	06/11/2024 2154
PFBA	ND	14	45	N	50	171	28	50-150	30	06/11/2024 2154
PFDA	ND	14	17	+	50	118	200	50-150	30	06/11/2024 2154
PFDoA	ND	14	17	+	50	118	42	50-150	30	06/11/2024 2154
PFHpA	23	14	42		50	133	19	50-150	30	06/11/2024 2154
PFHxA	49	14	74	N	50	176	21	50-150	30	06/11/2024 2154
PFNA	ND	14	20		50	137	27	50-150	30	06/11/2024 2154
PFOA	130	14	130	N	50	-33	5.7	50-150	30	06/11/2024 2154
PFPeA	ND	14	35		50	126	2.6	50-150	30	06/11/2024 2154
PFTeDA	ND	14	16		50	114	28	50-150	30	06/11/2024 2154
PFTrDA	ND	14	16	+	50	111	31	50-150	30	06/11/2024 2154
PFUdA	ND	16	ND	N,+	50	0.00	200	50-150	30	06/11/2024 2154
PFOS	11000	13	13000	N	50	14500	8.4	50-150	30	06/11/2024 2154

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		146	25-150
13C2_6:2FTS		114	25-150
13C2_8:2FTS		122	25-150
13C2_PFDoA		86	25-150
13C2_PFTeDA		101	25-150
13C3_PFBS		97	25-150
13C3_PFHxS		116	25-150
13C3-HFPO-DA		102	25-150
13C4_PFBA		100	25-150
13C4_PFHpA		102	25-150
13C5_PFHxA		94	25-150
13C5_PFPeA		96	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MSD

Sample ID: ZE23018-018MD
Batch: 12768
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 06/08/2024 2348

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		95	25-150
13C7_PFUdA		107	25-150
13C8_PFOA		94	25-150
13C8_PFOS		93	25-150
13C8_PFOSA		101	10-150
13C9_PFNA		102	25-150
d5-EtFOSAA		102	25-150
d3-MeFOSAA		106	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: ZQ13114-001
Batch: 13114
Analytical Method: PFAS by ID SOP
Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 06/17/2024 1149

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
PFBA	ND		1	4.0	0.60	ng/L	06/18/2024 1331

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		86	25-150
13C2_6:2FTS		113	25-150
13C2_8:2FTS		100	25-150
13C2_PFDoA		96	25-150
13C2_PFTeDA		94	25-150
13C3_PFBS		92	25-150
13C3_PFHxS		94	25-150
13C3-HFPO-DA		94	25-150
13C4_PFBA		94	25-150
13C4_PFHpA		100	25-150
13C5_PFHxA		100	25-150
13C5_PFPeA		94	25-150
13C6_PFDA		92	25-150
13C7_PFUdA		93	25-150
13C8_PFOA		93	25-150
13C8_PFOS		95	25-150
13C8_PFOSA		98	10-150
13C9_PFNA		93	25-150
d5-EtFOSAA		94	25-150
d3-MeFOSAA		91	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ13114-002
Batch: 13114
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 06/17/2024 1149

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
PFBA	16	16		1	99	50-150	06/18/2024 1342

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		98	25-150
13C2_6:2FTS		103	25-150
13C2_8:2FTS		107	25-150
13C2_PFDoA		85	25-150
13C2_PFTeDA		89	25-150
13C3_PFBS		87	25-150
13C3_PFHxS		88	25-150
13C3-HFPO-DA		97	25-150
13C4_PFBA		89	25-150
13C4_PFHpA		96	25-150
13C5_PFHxA		97	25-150
13C5_PFPeA		94	25-150
13C6_PFDA		98	25-150
13C7_PFUdA		91	25-150
13C8_PFOA		103	25-150
13C8_PFOS		90	25-150
13C8_PFOSA		97	10-150
13C9_PFNA		90	25-150
d5-EtFOSAA		92	25-150
d3-MeFOSAA		96	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Chain of Custody
and
Miscellaneous Documents

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Number

Client	Report to Contact	Telephone No. / E-mail	Quote No.
Arcadis	Tiffany Linder, Kaitlyn Hunt	(248)603-4013/ kaitlyn.hunt@arcadis.com	
Address: 28550 Cabot Drive, Suite 500	Sampler's Signature: x [signature]	Analysis (Attach list if more space is needed)	Page 1 of 4
City: Novi / State: MI / Zip Code: 48377	Printed Name: Austin Westhuis		Lot # Bar Code
Project Name: RACER Lansing GWS			ZE23018
Project Number: 30214038.0370A	P.O. No.: US3450016163		KES2

Sample ID / Description (Containers for each sample may be combined on one line)	Collection Date(s)	Collection Time (military)	G=Grab C=Composite	Matrix: Aqueous	Solid	Non-Aqueous	No of Containers by Preservative Type: Unpres.	H2SO4	HNO3	HCl	NaOH	5035 Kit	Field Filtered	PFAS (Method 537M, EGLE 28 compounds)	Remarks / Cooler I.D.
MW-18-93_052124	5/21/24	1005	G	X			2							2	
DUP-08_052124	~~5/21/24~~	—	G	X			2							2	
EB-07_052124	5/21/24	0905	G	X			2							2	
MW-19-91_052124	5/21/24	1115	G	X			2							2	
MW-19-111_052124	5/21/24	1245	G	X			2							2	
MW-19-108_052124	5/21/24	1405	G	X			2							2	
MW-18-92_052124	5/21/24	1500	G	X			2							2	
MW-19-107_052124	5/21/24	1550	G	X			2							2	
EB-06_052124	5/21/24	1815	G	X			2							2	
UNK-15_052124	5/21/24	1700	G	X			2							2	

Turn Around Time Required (Prior lab approval required for expedited TAT): ☑ Standard ☐ Rush (Please Specify)

Sample Disposal: ☐ Return to Client ☑ Disposal by Lab

Possible Hazard Identification (List any known hazards in the remarks): ☒ Non-Hazardous ☐ Flammable ☐ Skin Irritant ☐ SDS provided ☐ Unknown

QC Requirements

	Date	Time		Date	Time
1. Relinquished by: [signature] / Austin Westhuis / Arcadis	5/22/24	1500	1. Received by: FedEx	5/20/24	1500
2. Relinquished by	Date	Time	2. Received by	Date	Time
3. Relinquished by	Date	Time	3. Received by	Date	Time
4. Relinquished by: FEDEX	Date: 5/23/24	Time: 1011	4. Laboratory Received by	Date: 5/23/24	Time: 1001

Note: All samples are retained for four weeks from receipt unless other arrangements are made

LAB USE ONLY — Received on Ice (Check) ☑ Y ☐ N ☐ Ice Pack — Receipt Temp. 2.1 °C — Temp. Blank ☐ Y / ☒ N

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West Columbia, South Carolina 29172
Telephone No. (803) 791-9700 Fax No. (803) 791-9111
www.pacelabs.com

Number

Client	Report to Contact	Telephone No. / E-mail	Quote No.
Arcadis	Tiffany Linder, Kaitlyn Hunt	(248)809-4013/ kaitlyn.hunt@arcadis.com	
Address: 28550 Cabot Drive, Suite 500	Sampler's Signature: x [signature]	Analysis (Attach list if more space is needed)	Page 2 of 4
City: Novi / State: MI / Zip Code: 48377	Printed Name: Austin Westhuis		Lot # Bar Code: ZE23018
Project Name: RACER Lansing GWS			
Project Number: 30214036.0370A	P.O. No.: US3460016163		

Sample ID / Description (Containers for each sample may be combined on one line)	Collection Date(s)	Collection Time (military)	G=Grab C=Composite	Matrix: Aqueous	Solid	Non-Aqueous	No of Containers by Preservative Type: Unpres.	H2SO4	HNO3	HCl	NaOH	5035 Kit	Field Filtered	PFAS (Method 537M, EGLE 28 compounds)	Remarks / Cooler I.D.
MW-02-04(3)_052124	5/21/24	1100	G	X			2							2	
MW-19-94_052124	5/21/24	1425	G	X			2							2	
MW-18-97_052124	5/21/24	1240	G	X			2							2	
MW-18-101_052124	5/21/24	1550	G	X			2							2	
MW-23_052124	5/21/24	1715	G	X			2							2	
MW-91-2R_052224	5/22/24	0935	G	X			2							2	
DUP-09_052224	5/22/24	—	G	X			2							2	
CH-14-R0_052224	5/22/24	1040	G	X			6							6	MS/MSD
MW-18-88_052224	5/22/24	1150	G	X			2							2	

Turn Around Time Required (Prior lab approval required for expedited TAT): ☑ Standard ☐ Rush (Please Specify)

Sample Disposal: ☐ Return to Client ☑ Disposal by Lab

Possible Hazard Identification (List any known hazards in the remarks): ☒ Non-Hazardous ☐ Flammable ☐ Skin Irritant ☐ SDS provided ☐ Unknown

QC Requirements

	Date	Time		Date	Time
1. Relinquished by: [signature] / Austin Westhuis / Arcadis	5/22/24	1506	1. Received by: FedEx	5/22/24	1500
2. Relinquished by	Date	Time	2. Received by	Date	Time
3. Relinquished by	Date	Time	3. Received by	Date	Time
4. Relinquished by: FEDEX	Date: 5/23/24	Time: 1001	4. Laboratory Received by: [signature]	Date: 5/23/24	Time: 1001

Note: All samples are retained for four weeks from receipt unless other arrangements are made

LAB USE ONLY — Received on Ice (Check) ☒ Y ☐ N ☐ Ice Pack — Receipt Temp. 21.1.4 °C — Temp. Blank ☐ Y / ☒ N

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Number 153102

Client: Arcadis	Report to Contact: Tiffany Linder, Kaitlyn Hunt	Telephone No. / E-mail: (248) 809-4013 / kaitlyn.hunt@arcadis.com
Address: 28550 Cabot Drive, Suite 500	Sampler's Signature: X	Analysis (Attach list if more space is needed)
City: Novi	State: MI	Zip Code: 48377
Project Name: RACER Lansing GWS	Printed Name: Jackie Schulte	
Project No.: 30214036.0370A	P.O. No.: US.94600916163	

Page 3 of 4

ZE23018

KES2

Sample ID / Description (Containers for each sample may be combined on one line.)	Collection Date(s)	Collection Time (Military)	Sample Type (G=Grab, C=Composite)	Matrix: Aqueous	Matrix: Solid	Matrix: Wipe/Other	No. of Containers by Preservative Type: Unpres.	Nitric	HNO3	ISO	NaOH	2SO4 W	Field Filtered	PFAS (Method 537.M, EDD 2.0 comps.)	Remarks / Cooler I.D.
MW-18-105_052024	5/20/24	1010	G	X			2							2	
MW-18-103_052024	5/20/24	1220	G	X			2							2	
MW-18-90_052024	5/20/24	1525	G	X			2							2	
MW-18-89_052124	5/21/24	0915	G	X			2							2	
MW-18-95_052124	5/21/24	1040	G	X			2							2	
MW-19-112_052124	5/21/24	1220	G	X			2							2	
MW-19-113_052124	5/21/24	1255	G	X			2							2	
MW-18-100_052124	5/21/24	1540	G	X			2							2	
EB-05_052124	5/21/24	1225	G	X			2							2	
DUP-06_052024	5/20/24	—	G	X			2							2	

Turn Around Time Required (Prior lab approval required for expedited TAT.)
☒ Standard ☐ Rush (Specify)

Sample Disposal
☐ Return to Client ☒ Disposal by Lab

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison ☐ Unknown

QC Requirements (Specify)

1. Relinquished by: Christin Westhaus / Arcadis	Date: 5/22/24	Time: 1500	1. Received by: FedEx	Date: 5/22/24	Time: 1500
2. Relinquished by	Date	Time	2. Received by	Date	Time
3. Relinquished by	Date	Time	3. Received by	Date	Time
4. Relinquished by: FEDEX	Date: 5/23/24	Time: 0911	4. Laboratory received by	Date: 5/24/24	Time: 1001

Note: All samples are retained for four weeks from receipt unless other arrangements are made.

LAB USE ONLY
Received on Ice (Circle) Yes No Ice Pack
Receipt Temp: 2.1/1.9 °C
Temp Blank: ☐ Y ☒ N

DISTRIBUTION: WHITE & YELLOW-Return to laboratory with Sample(s); PINK-Field/Client Copy

Document Number: ME003N2-01

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Number 153103

Client: Arcadis	Report to Contact: Tiffany Linder, Kaitlyn Hunt	Telephone No. / E-mail: 248-807-4013 / kaitlyn.hunt@arcadis.com	Quote No.
Address: 28550 Cabot Dr, Suite 500	Sampler's Signature: Ellen Redner	Analysis (Attach list if more space is needed)	Page 4 of 4
City: Novi; State: MI; Zip Code: 48377	Printed Name		
Project Name: RACER Lansing GWS			
Project No.: 30214036.0370A	P.O. No.: 6534600161163		

Sample ID / Description (Containers for each sample may be combined on one line.)	Collection Date(s)	Collection Time (Military)	Grab/Composite	Matrix: Aqueous	Matrix: Solid	Matrix: Non-Aqueous	No of Containers by Preservative Type: Unpres.	HCl	HNO3	H2SO4	NaOH	NaOH/ZnAc	Field Filtered	PFAS 3 (Modified 537.1) PFAS 18 (Modified 537.1)	Remarks / Cooler I.D.
MW-19-114_052024	5/20/24	1010	G	X			X							2	
MW-18-104_052024	"	1140	"	"			"							"	
MW-18-102_052024	"	1325	"	"			"							"	
MW-18-98_052024	"	1020	"	"			"							"	
MW-18-99_052024	↓	1740	↓	↓			↓							↓	

5/20/24

ZE23018
XE32

Turn Around Time Required (Prior lab approval required for expedited TAT): ☐ Standard ☐ Rush (Specify)	Sample Disposal: ☐ Return to Client ☐ Disposal by Lab	Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison ☐ Unknown	QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished by: Arcadis	1810	5/20/24	1. Received by: Austin Westhuis/Arcadis	5/20/24	1810
2. Relinquished by: Austin Westhuis/Arcadis	5/20/24	1500	2. Received by: FedEx	5/20/24	1500
3. Relinquished by	Date	Time	3. Received by	Date	Time
4. Relinquished by: FEDEX	5/23/24	1001	4. Laboratory received by	5/23/24	1001

Note: All samples are retained for four weeks from receipt unless other arrangements are made.

LAB USE ONLY
Received on Ice (Circle) (Yes) No Ice Pack — Receipt Temp: 2.1, 1.4 °C — Temp Blank ☐ Y ☒N

DISTRIBUTION: WHITE & YELLOW-Return to laboratory with Sample(s); PINK-Field/Client Copy

Document Number: MEC03N2-01

PACE ANALYTICAL SERVICES, LLC

DC#_Title: ENV-FRM-WCOL-0286 v02_Samples Receipt Checklist (SRC)
Effective Date: 8/2/2022

Sample Receipt Checklist (SRC)

Client: ARCADIS Cooler Inspected by/date: SC / 5/23/24 Lot #: 24230 18

Means of receipt: ☐ Pace ☐ Client ☐ UPS ☒ FedEx ☐ Other:

☒ Yes	☐ No		1. Were custody seals present on the cooler?
☒ Yes	☐ No	☐ NA	2. If custody seals were present, were they intact and unbroken?

pH Strip ID: NA Chlorine Strip ID: NA Tested by:

Original temperature upon receipt / Derived (Corrected) temperature upon receipt %Solid Snap-Cup ID:

21.1 °C 1.6/1.4 °C NO/CO °C NO/CO °C

Method: ☐ Temperature Blank ☒ Against Bottles IR Gun ID: 8 IR Gun Correction Factor: 0 °C

Method of coolant: ☒ Wet Ice ☐ Ice Packs ☐ Dry Ice ☐ None

☒ Yes	☐ No	☐ NA	3. Were all coolers received at or below 6.0°C? If no, was Project Manager notified? PM was Notified by: phone / email / face-to-face (circle one).
☒ Yes	☐ No	☐ NA	4. Is the commercial courier's packing slip attached to this form?
☒ Yes	☐ No		5. Were proper custody procedures (relinquished/received) followed?
☒ Yes	☐ No		6. Were sample IDs listed on the COC and all sample containers?
☒ Yes	☐ No		7. Was collection date & time listed on the COC and all sample containers?
☒ Yes	☐ No		8. Did all container label information (ID, date, time) agree with the COC?
☒ Yes	☐ No		9. Were tests to be performed listed on the COC?
☒ Yes	☐ No		10. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)? 5/23/24
☐ Yes	☒ No		11. Was adequate sample volume available?
☒ Yes	☐ No		12. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
☒ Yes	☐ No		13. Were all samples containers accounted for? (No missing/excess)
☐ Yes	☐ No	☒ NA	14. Were VOA, 8015C and RSK-175 samples free of bubbles >"pea-size" (¼"or 6mm in diameter) in any of the VOA vials?
☐ Yes	☐ No	☒ NA	15. Were all DRO/metals/nutrient samples received at a pH of < 2?
☐ Yes	☐ No	☒ NA	16. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
☐ Yes	☐ No	☒ NA	17. Were all applicable NH_3/TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?
☒ Yes	☐ No	☐ NA	18. Was the quote number listed on the container label? If yes, Quote # 76329

Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)

Sample(s) NA were received incorrectly preserved and were adjusted accordingly in sample receiving with NA mL of circle one: H_2SO_4, HNO_3, HCl, NaOH using SR # NA ☐
Time of preservation NA. If more than one preservative is needed, please note in the comments below.

Sample(s) NA were received with bubbles >6 mm in diameter.

Samples(s) NA were received with TRC > 0.5 mg/L (If #19 is *no*) and were adjusted accordingly in sample receiving with sodium thiosulfate ($Na_2S_2O_3$) with Unique ID: NA

Comments: One of Sample set "mw-19-113-052124" 3 Pair 250mL Bottles had trace inadequate volume
SC 5/23/24

Qualtrax ID: 56360

Report of Analysis

Arcadis U.S., Inc.
630 Plaza Drive
Suite 600
Highlands Ranch, CO 80129
Attention: Tiffany Linder

Project Name: RACER PFAS

Project Number: 30214036.0370

Lot Number:**ZE24035**

Date Completed:06/29/2024

07/01/2024 1:32 PM
Approved and released by:
Project Manager II: **Kathy E. Smith**





The electronic signature above is the equivalent of a handwritten signature.
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Case Narrative
Arcadis U.S., Inc.
Lot Number: ZE24035

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.
Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved The NELAC Institute (TNI) standards, the Pace Analytical Services, LLC ("Pace") Laboratory Quality Manual, standard operating procedures (SOPs), and Pace policies. Additionally, the DoD QSM version 5.4 has been followed for these samples, and specifically Table B-15 was followed for all PFAS samples. Any exceptions to the TNI standards, the Laboratory Quality Manual, SOPs, the DoD QSM, or policies are qualified on the results page or discussed below.

All QC associated with these samples were compliant with DOD QSM 5.4 table B-15 and our PFAS SOP.
Correction factors (CF) are used to calculate the original sample concentration. The CF is the inverse of the concentration factor (sample volume / extract final volume) times the dilution factor (DF). The CF is calculated as follows:

CF = DF * FV / Vo
FV is volume of extract (mL)
Vo is initial sample volume (mL)
DF is dilution factor. For undiluted analysis, DF = 1.

Sample concentration for aqueous samples:
Concentration (ng/L) = Cs*CF,

$$C_s = \frac{\left(\frac{(A_s x C_{is})}{A_{is}}\right) - B}{M1}$$

Where

C_s is on column concentration of target analyte in the sample (ng/L)
C_{is} is concentration of internal standard in the sample (ng/L)
A_s is peak response of target analyte in the sample
A_{is} is peak response of internal standard in the sample
M1 is the average RF from ICAL or the slope from linear regression ICAL
B is the y-intercept from the ICAL

Pace is a TNI accredited laboratory; however, the following analyses are currently not listed on our TNI scope of accreditation: E. coli and Total coliforms SM 9223 B-2004, Solid Chemical Material: TOC Walkley-Black, Biological Tissue: All, Non-Potable Water: SGT-HEM EPA 1664B, Silica EPA 200.7, Boron, Calcium, Silicon, Strontium EPA 200.8, Bicarbonate, Carbonate, and Hydroxide Alkalinity SM 2320 B-2011, SM 9221 C E-2006 & SM 9222D-2006, Strontium SW-846 6010D, VOC SM 6200 B-2011, Fecal Coliform Colilert-18. If you have any questions regarding this report, please contact the Pace Project Manager listed on the cover page.

Manual integration summaries are provided at the end of this report when applicable.

PFAS
Samples ZE24035-002, ZE24035-005, ZE24035-009, ZE24035-011, ZE24035-015, ZE24035-028, ZE24035-029, ZE24035-030 required centrifugation prior to extraction, due to excessive solids present in the samples. Centrifugation was performed following the PFAS Aqueous Centrifuge Protocol; samples were spiked with Surrogate (SUR; Extracted Internal Standard/EIS) and shaken vigorously before being poured into a conical bottle and centrifuged. The centrifuged aqueous sample was decanted back into the original sample bottle, off of the condensed solids remaining in the centrifuge bottle. Original sample bottle was rinsed as normal and centrifuge bottle was rinsed with 4mL of MeOH. Centrifuge bottle rinsate was added to the elution. Samples concentrated to <5mL and reconstituted to 5mL using MeOH by transfer pipet.

Surrogate recovery for the following samples was outside control limits: ZE24035-001, ZE24035-033. Re-extraction and/or re-analysis was performed outside of holding time with acceptable results. Both sets of data have been reported.

Surrogate recovery for the following samples was outside the upper control limit: ZE24035-002, ZE24035-004, ZE24035-006, ZE24035-007, ZE24035-008, ZE24035-009, ZE24035-010, ZE24035-016, ZE24035-019, ZE24035-021, ZE24035-022, ZE24035-023, ZE24035-027, ZE24035-031, ZE24035-034. These samples did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

Surrogate recovery for the following sample was outside control limits: ZE24035-032. Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Sample Summary
Arcadis U.S., Inc.
Lot Number: ZE24035
Project Name: RACER PFAS
Project Number: 30214036.0370

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	MW-22-150_052324	Aqueous	05/23/2024 1300	05/24/2024
002	MW-22-151_052324	Aqueous	05/23/2024 1405	05/24/2024
003	MW-22-152_052324	Aqueous	05/23/2024 1500	05/24/2024
004	MW-12-10R_052224	Aqueous	05/22/2024 1035	05/24/2024
005	MW-12-11_052224	Aqueous	05/22/2024 1200	05/24/2024
006	MW-12-12_052224	Aqueous	05/22/2024 1335	05/24/2024
007	MW-14-70_052224	Aqueous	05/22/2024 1455	05/24/2024
008	MW-20-131_052224	Aqueous	05/22/2024 1615	05/24/2024
009	MW-20-132_052324	Aqueous	05/23/2024 1025	05/24/2024
010	P6-SB-07_052324	Aqueous	05/23/2024 1555	05/24/2024
011	MW-22-143_052224	Aqueous	05/22/2024 1325	05/24/2024
012	MW-22-158_052224	Aqueous	05/22/2024 1435	05/24/2024
013	MW-22-144_052224	Aqueous	05/22/2024 1545	05/24/2024
014	MW-22-145_052224	Aqueous	05/22/2024 1630	05/24/2024
015	MW-22-160_052224	Aqueous	05/22/2024 1745	05/24/2024
016	MW-22-146_052224	Aqueous	05/22/2024 1845	05/24/2024
017	DUP-14_052224	Aqueous	05/22/2024	05/24/2024
018	MW-22-148_052324	Aqueous	05/23/2024 0935	05/24/2024
019	MW-22-147_052324	Aqueous	05/23/2024 1020	05/24/2024
020	MW-22-149_052324	Aqueous	05/23/2024 1135	05/24/2024
021	MW-21-133_052224	Aqueous	05/22/2024 1025	05/24/2024
022	MW-21-134_052224	Aqueous	05/22/2024 1150	05/24/2024
023	MW-21-135_052224	Aqueous	05/22/2024 1345	05/24/2024
024	MW-21-136_052224	Aqueous	05/22/2024 1530	05/24/2024
025	MW-21-137_052324	Aqueous	05/23/2024 0935	05/24/2024
026	MW-21-138_052324	Aqueous	05/23/2024 1055	05/24/2024
027	MW-04-05(6)_052324	Aqueous	05/23/2024 1305	05/24/2024
028	MW-04-06R_052224	Aqueous	05/22/2024 1115	05/24/2024
029	MW-04-04R_052224	Aqueous	05/22/2024 1500	05/24/2024
030	DUP-13_052224	Aqueous	05/22/2024	05/24/2024
031	MW-12-13_052324	Aqueous	05/23/2024 1245	05/24/2024
032	MW-13-36R_052324	Aqueous	05/23/2024 1405	05/24/2024
033	DUP-12_052324	Aqueous	05/23/2024	05/24/2024
034	MW-14-67_052324	Aqueous	05/23/2024 1515	05/24/2024

(34 samples)

Detection Summary

Arcadis U.S., Inc.

Lot Number: ZE24035

Project Name: RACER PFAS

Project Number: 30214036.0370

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	MW-22-150_052324	Aqueous	6:2 FTS	PFAS by ID	24		ng/L	11
001	MW-22-150_052324	Aqueous	ADONA	PFAS by ID	0.45	J	ng/L	11
001	MW-22-150_052324	Aqueous	PFBA	PFAS by ID	2.6	J	ng/L	11
002	MW-22-151_052324	Aqueous	PFBS	PFAS by ID	8.1		ng/L	15
002	MW-22-151_052324	Aqueous	PFHxS	PFAS by ID	1.6	J	ng/L	15
002	MW-22-151_052324	Aqueous	PFBA	PFAS by ID	9.7		ng/L	15
002	MW-22-151_052324	Aqueous	PFHpA	PFAS by ID	3.7		ng/L	15
002	MW-22-151_052324	Aqueous	PFHxA	PFAS by ID	7.7		ng/L	15
002	MW-22-151_052324	Aqueous	PFNA	PFAS by ID	0.50	J	ng/L	15
002	MW-22-151_052324	Aqueous	PFOA	PFAS by ID	7.6		ng/L	15
002	MW-22-151_052324	Aqueous	PFPeA	PFAS by ID	12		ng/L	15
002	MW-22-151_052324	Aqueous	PFOS	PFAS by ID	4.1		ng/L	15
003	MW-22-152_052324	Aqueous	PFBS	PFAS by ID	4.5		ng/L	17
003	MW-22-152_052324	Aqueous	PFHxS	PFAS by ID	2.0	J	ng/L	17
003	MW-22-152_052324	Aqueous	PFBA	PFAS by ID	4.6		ng/L	17
003	MW-22-152_052324	Aqueous	PFHpA	PFAS by ID	1.2	J	ng/L	17
003	MW-22-152_052324	Aqueous	PFOA	PFAS by ID	2.9	J	ng/L	17
003	MW-22-152_052324	Aqueous	PFPeA	PFAS by ID	3.0	J	ng/L	17
004	MW-12-10R_052224	Aqueous	PFHxS	PFAS by ID	1.7	J	ng/L	19
004	MW-12-10R_052224	Aqueous	PFBA	PFAS by ID	7.0		ng/L	19
004	MW-12-10R_052224	Aqueous	PFHpA	PFAS by ID	3.5	J	ng/L	19
004	MW-12-10R_052224	Aqueous	PFNA	PFAS by ID	0.66	J	ng/L	19
004	MW-12-10R_052224	Aqueous	PFOA	PFAS by ID	7.6		ng/L	19
004	MW-12-10R_052224	Aqueous	PFPeA	PFAS by ID	4.3		ng/L	19
004	MW-12-10R_052224	Aqueous	PFOS	PFAS by ID	8.7		ng/L	19
005	MW-12-11_052224	Aqueous	PFBA	PFAS by ID	6.8		ng/L	21
006	MW-12-12_052224	Aqueous	PFHxS	PFAS by ID	2.0	J	ng/L	23
006	MW-12-12_052224	Aqueous	PFBA	PFAS by ID	43		ng/L	23
006	MW-12-12_052224	Aqueous	PFDA	PFAS by ID	5.3		ng/L	23
006	MW-12-12_052224	Aqueous	PFHpA	PFAS by ID	43		ng/L	23
006	MW-12-12_052224	Aqueous	PFHxA	PFAS by ID	140		ng/L	23
006	MW-12-12_052224	Aqueous	PFNA	PFAS by ID	3.9	J	ng/L	23
006	MW-12-12_052224	Aqueous	PFOA	PFAS by ID	98		ng/L	23
006	MW-12-12_052224	Aqueous	PFPeA	PFAS by ID	75		ng/L	23
006	MW-12-12_052224	Aqueous	PFOS	PFAS by ID	19		ng/L	23
007	MW-14-70_052224	Aqueous	PFBS	PFAS by ID	7.7		ng/L	25
007	MW-14-70_052224	Aqueous	PFHxS	PFAS by ID	2.9	J	ng/L	25
007	MW-14-70_052224	Aqueous	PFBA	PFAS by ID	56		ng/L	25
007	MW-14-70_052224	Aqueous	PFHpA	PFAS by ID	64		ng/L	25
007	MW-14-70_052224	Aqueous	PFHxA	PFAS by ID	140		ng/L	25
007	MW-14-70_052224	Aqueous	PFOA	PFAS by ID	32		ng/L	25
007	MW-14-70_052224	Aqueous	PFPeA	PFAS by ID	170		ng/L	25
008	MW-20-131_052224	Aqueous	PFHxS	PFAS by ID	2.4	J	ng/L	27

Detection Summary (Continued)

Lot Number: ZE24035

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
008	MW-20-131_052224	Aqueous	PFBA	PFAS by ID	18		ng/L	27
008	MW-20-131_052224	Aqueous	PFHpA	PFAS by ID	20		ng/L	27
008	MW-20-131_052224	Aqueous	PFHxA	PFAS by ID	25		ng/L	27
008	MW-20-131_052224	Aqueous	PFNA	PFAS by ID	1.1	J	ng/L	27
008	MW-20-131_052224	Aqueous	PFOA	PFAS by ID	31		ng/L	27
008	MW-20-131_052224	Aqueous	PFPeA	PFAS by ID	29		ng/L	27
008	MW-20-131_052224	Aqueous	PFOS	PFAS by ID	2.9	J	ng/L	27
009	MW-20-132_052324	Aqueous	PFHxS	PFAS by ID	2.1	J	ng/L	29
009	MW-20-132_052324	Aqueous	PFBA	PFAS by ID	14		ng/L	29
009	MW-20-132_052324	Aqueous	PFDA	PFAS by ID	2.1	J	ng/L	29
009	MW-20-132_052324	Aqueous	PFHpA	PFAS by ID	17		ng/L	29
009	MW-20-132_052324	Aqueous	PFHxA	PFAS by ID	16		ng/L	29
009	MW-20-132_052324	Aqueous	PFNA	PFAS by ID	4.8		ng/L	29
009	MW-20-132_052324	Aqueous	PFOA	PFAS by ID	24		ng/L	29
009	MW-20-132_052324	Aqueous	PFPeA	PFAS by ID	20		ng/L	29
009	MW-20-132_052324	Aqueous	PFOS	PFAS by ID	11		ng/L	29
010	P6-SB-07_052324	Aqueous	PFBS	PFAS by ID	3.0	J	ng/L	31
010	P6-SB-07_052324	Aqueous	PFPeS	PFAS by ID	0.93	J	ng/L	31
010	P6-SB-07_052324	Aqueous	PFHxS	PFAS by ID	2.8	J	ng/L	31
010	P6-SB-07_052324	Aqueous	PFBA	PFAS by ID	190		ng/L	31
010	P6-SB-07_052324	Aqueous	PFDA	PFAS by ID	18		ng/L	31
010	P6-SB-07_052324	Aqueous	PFHpA	PFAS by ID	480		ng/L	31
010	P6-SB-07_052324	Aqueous	PFHxA	PFAS by ID	600		ng/L	31
010	P6-SB-07_052324	Aqueous	PFNA	PFAS by ID	81		ng/L	31
010	P6-SB-07_052324	Aqueous	PFOA	PFAS by ID	610		ng/L	31
010	P6-SB-07_052324	Aqueous	PFPeA	PFAS by ID	580		ng/L	31
010	P6-SB-07_052324	Aqueous	PFOS	PFAS by ID	30		ng/L	31
011	MW-22-143_052224	Aqueous	PFBS	PFAS by ID	1.5	J	ng/L	33
011	MW-22-143_052224	Aqueous	PFHxS	PFAS by ID	0.62	J	ng/L	33
011	MW-22-143_052224	Aqueous	PFBA	PFAS by ID	12		ng/L	33
011	MW-22-143_052224	Aqueous	PFHpA	PFAS by ID	7.4		ng/L	33
011	MW-22-143_052224	Aqueous	PFHxA	PFAS by ID	16		ng/L	33
011	MW-22-143_052224	Aqueous	PFOA	PFAS by ID	8.7		ng/L	33
011	MW-22-143_052224	Aqueous	PFPeA	PFAS by ID	11		ng/L	33
012	MW-22-158_052224	Aqueous	PFBS	PFAS by ID	1.4	J	ng/L	35
012	MW-22-158_052224	Aqueous	PFBA	PFAS by ID	4.9		ng/L	35
012	MW-22-158_052224	Aqueous	PFHxA	PFAS by ID	2.5	J	ng/L	35
012	MW-22-158_052224	Aqueous	PFOA	PFAS by ID	1.2	J	ng/L	35
012	MW-22-158_052224	Aqueous	PFPeA	PFAS by ID	2.9	J	ng/L	35
013	MW-22-144_052224	Aqueous	PFBS	PFAS by ID	2.7	J	ng/L	37
013	MW-22-144_052224	Aqueous	PFHxS	PFAS by ID	4.2		ng/L	37
013	MW-22-144_052224	Aqueous	PFBA	PFAS by ID	7.7		ng/L	37
013	MW-22-144_052224	Aqueous	PFHpA	PFAS by ID	7.7		ng/L	37
013	MW-22-144_052224	Aqueous	PFHxA	PFAS by ID	13		ng/L	37
013	MW-22-144_052224	Aqueous	PFNA	PFAS by ID	0.73	J	ng/L	37
013	MW-22-144_052224	Aqueous	PFOA	PFAS by ID	17		ng/L	37
013	MW-22-144_052224	Aqueous	PFPeA	PFAS by ID	13		ng/L	37
013	MW-22-144_052224	Aqueous	PFOS	PFAS by ID	3.7		ng/L	37

Detection Summary (Continued)

Lot Number: ZE24035

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
014	MW-22-145_052224	Aqueous	PFBS	PFAS by ID	3.9		ng/L	39
014	MW-22-145_052224	Aqueous	PFHpS	PFAS by ID	0.91	J	ng/L	39
014	MW-22-145_052224	Aqueous	PFPeS	PFAS by ID	0.72	J	ng/L	39
014	MW-22-145_052224	Aqueous	PFHxS	PFAS by ID	3.1	J	ng/L	39
014	MW-22-145_052224	Aqueous	PFBA	PFAS by ID	7.6		ng/L	39
014	MW-22-145_052224	Aqueous	PFHpA	PFAS by ID	9.4		ng/L	39
014	MW-22-145_052224	Aqueous	PFHxA	PFAS by ID	13		ng/L	39
014	MW-22-145_052224	Aqueous	PFNA	PFAS by ID	2.1	J	ng/L	39
014	MW-22-145_052224	Aqueous	PFOA	PFAS by ID	29		ng/L	39
014	MW-22-145_052224	Aqueous	PFPeA	PFAS by ID	13		ng/L	39
014	MW-22-145_052224	Aqueous	PFOS	PFAS by ID	14		ng/L	39
015	MW-22-160_052224	Aqueous	PFBA	PFAS by ID	1.2	J	ng/L	41
016	MW-22-146_052224	Aqueous	PFBS	PFAS by ID	5.0		ng/L	43
016	MW-22-146_052224	Aqueous	PFHxS	PFAS by ID	0.98	J	ng/L	43
016	MW-22-146_052224	Aqueous	PFBA	PFAS by ID	10		ng/L	43
016	MW-22-146_052224	Aqueous	PFHpA	PFAS by ID	1.0	J	ng/L	43
016	MW-22-146_052224	Aqueous	PFHxA	PFAS by ID	2.9	J	ng/L	43
016	MW-22-146_052224	Aqueous	PFOA	PFAS by ID	3.5		ng/L	43
016	MW-22-146_052224	Aqueous	PFPeA	PFAS by ID	2.1	J	ng/L	43
016	MW-22-146_052224	Aqueous	PFOS	PFAS by ID	5.0		ng/L	43
017	DUP-14_052224	Aqueous	PFBS	PFAS by ID	2.5	J	ng/L	45
017	DUP-14_052224	Aqueous	PFHxS	PFAS by ID	3.6		ng/L	45
017	DUP-14_052224	Aqueous	PFBA	PFAS by ID	6.9		ng/L	45
017	DUP-14_052224	Aqueous	PFHpA	PFAS by ID	6.8		ng/L	45
017	DUP-14_052224	Aqueous	PFHxA	PFAS by ID	12		ng/L	45
017	DUP-14_052224	Aqueous	PFNA	PFAS by ID	0.66	J	ng/L	45
017	DUP-14_052224	Aqueous	PFOA	PFAS by ID	15		ng/L	45
017	DUP-14_052224	Aqueous	PFPeA	PFAS by ID	12		ng/L	45
017	DUP-14_052224	Aqueous	PFOS	PFAS by ID	3.3		ng/L	45
018	MW-22-148_052324	Aqueous	PFBS	PFAS by ID	2.0	J	ng/L	47
019	MW-22-147_052324	Aqueous	PFBS	PFAS by ID	3.2	J	ng/L	49
019	MW-22-147_052324	Aqueous	PFHxS	PFAS by ID	1.9	J	ng/L	49
019	MW-22-147_052324	Aqueous	PFBA	PFAS by ID	5.4		ng/L	49
019	MW-22-147_052324	Aqueous	PFHpA	PFAS by ID	1.1	J	ng/L	49
019	MW-22-147_052324	Aqueous	PFHxA	PFAS by ID	2.1	J	ng/L	49
019	MW-22-147_052324	Aqueous	PFOA	PFAS by ID	3.4		ng/L	49
019	MW-22-147_052324	Aqueous	PFPeA	PFAS by ID	1.9	J	ng/L	49
019	MW-22-147_052324	Aqueous	PFOS	PFAS by ID	2.6	J	ng/L	49
020	MW-22-149_052324	Aqueous	PFBS	PFAS by ID	0.87	J	ng/L	51
020	MW-22-149_052324	Aqueous	PFOSA	PFAS by ID	0.52	J	ng/L	51
020	MW-22-149_052324	Aqueous	PFHxS	PFAS by ID	0.61	J	ng/L	51
020	MW-22-149_052324	Aqueous	PFBA	PFAS by ID	0.65	J	ng/L	51
020	MW-22-149_052324	Aqueous	PFHpA	PFAS by ID	0.63	J	ng/L	51
020	MW-22-149_052324	Aqueous	PFNA	PFAS by ID	1.1	J	ng/L	51
020	MW-22-149_052324	Aqueous	PFOA	PFAS by ID	2.1	J	ng/L	51
021	MW-21-133_052224	Aqueous	PFBS	PFAS by ID	2.0	J	ng/L	53
021	MW-21-133_052224	Aqueous	PFPeS	PFAS by ID	0.67	J	ng/L	53
021	MW-21-133_052224	Aqueous	PFHxS	PFAS by ID	1.8	J	ng/L	53

Detection Summary (Continued)

Lot Number: ZE24035

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
021	MW-21-133_052224	Aqueous	PFBA	PFAS by ID	17		ng/L	53
021	MW-21-133_052224	Aqueous	PFHpA	PFAS by ID	21		ng/L	53
021	MW-21-133_052224	Aqueous	PFHxA	PFAS by ID	24		ng/L	53
021	MW-21-133_052224	Aqueous	PFNA	PFAS by ID	2.3	J	ng/L	53
021	MW-21-133_052224	Aqueous	PFOA	PFAS by ID	55		ng/L	53
021	MW-21-133_052224	Aqueous	PFPeA	PFAS by ID	16		ng/L	53
021	MW-21-133_052224	Aqueous	PFOS	PFAS by ID	4.8		ng/L	53
022	MW-21-134_052224	Aqueous	PFBS	PFAS by ID	2.6	J	ng/L	55
022	MW-21-134_052224	Aqueous	PFPeS	PFAS by ID	0.64	J	ng/L	55
022	MW-21-134_052224	Aqueous	PFHxS	PFAS by ID	2.0	J	ng/L	55
022	MW-21-134_052224	Aqueous	PFBA	PFAS by ID	11		ng/L	55
022	MW-21-134_052224	Aqueous	PFHpA	PFAS by ID	16		ng/L	55
022	MW-21-134_052224	Aqueous	PFHxA	PFAS by ID	17		ng/L	55
022	MW-21-134_052224	Aqueous	PFNA	PFAS by ID	0.96	J	ng/L	55
022	MW-21-134_052224	Aqueous	PFOA	PFAS by ID	32		ng/L	55
022	MW-21-134_052224	Aqueous	PFPeA	PFAS by ID	14		ng/L	55
022	MW-21-134_052224	Aqueous	PFOS	PFAS by ID	4.4		ng/L	55
023	MW-21-135_052224	Aqueous	PFBS	PFAS by ID	1.7	J	ng/L	57
023	MW-21-135_052224	Aqueous	PFPeS	PFAS by ID	1.2	J	ng/L	57
023	MW-21-135_052224	Aqueous	PFHxS	PFAS by ID	2.6	J	ng/L	57
023	MW-21-135_052224	Aqueous	PFBA	PFAS by ID	9.3		ng/L	57
023	MW-21-135_052224	Aqueous	PFHpA	PFAS by ID	37		ng/L	57
023	MW-21-135_052224	Aqueous	PFHxA	PFAS by ID	23		ng/L	57
023	MW-21-135_052224	Aqueous	PFNA	PFAS by ID	1.9	J	ng/L	57
023	MW-21-135_052224	Aqueous	PFOA	PFAS by ID	57		ng/L	57
023	MW-21-135_052224	Aqueous	PFPeA	PFAS by ID	16		ng/L	57
023	MW-21-135_052224	Aqueous	PFOS	PFAS by ID	2.0	J	ng/L	57
024	MW-21-136_052224	Aqueous	PFBS	PFAS by ID	0.59	J	ng/L	59
024	MW-21-136_052224	Aqueous	PFBA	PFAS by ID	1.2	J	ng/L	59
024	MW-21-136_052224	Aqueous	PFPeA	PFAS by ID	0.56	J	ng/L	59
027	MW-04-05(6)_052324	Aqueous	PFHxS	PFAS by ID	2.0	J	ng/L	65
027	MW-04-05(6)_052324	Aqueous	PFBA	PFAS by ID	15		ng/L	65
027	MW-04-05(6)_052324	Aqueous	PFHpA	PFAS by ID	21		ng/L	65
027	MW-04-05(6)_052324	Aqueous	PFHxA	PFAS by ID	29		ng/L	65
027	MW-04-05(6)_052324	Aqueous	PFNA	PFAS by ID	0.68	J	ng/L	65
027	MW-04-05(6)_052324	Aqueous	PFOA	PFAS by ID	32		ng/L	65
027	MW-04-05(6)_052324	Aqueous	PFPeA	PFAS by ID	26		ng/L	65
028	MW-04-06R_052224	Aqueous	PFBA	PFAS by ID	3.8		ng/L	67
028	MW-04-06R_052224	Aqueous	PFPeA	PFAS by ID	1.0	J	ng/L	67
029	MW-04-04R_052224	Aqueous	PFBA	PFAS by ID	1.1	J	ng/L	69
030	DUP-13_052224	Aqueous	PFBA	PFAS by ID	3.4		ng/L	71
031	MW-12-13_052324	Aqueous	PFBS	PFAS by ID	3.4	J	ng/L	73
031	MW-12-13_052324	Aqueous	PFBA	PFAS by ID	25		ng/L	73
031	MW-12-13_052324	Aqueous	PFHpA	PFAS by ID	25		ng/L	73
031	MW-12-13_052324	Aqueous	PFHxA	PFAS by ID	60		ng/L	73
031	MW-12-13_052324	Aqueous	PFOA	PFAS by ID	8.6		ng/L	73
031	MW-12-13_052324	Aqueous	PFPeA	PFAS by ID	33		ng/L	73
032	MW-13-36R_052324	Aqueous	EtFOSAA	PFAS by ID	4.4	J	ng/L	75

Detection Summary (Continued)

Lot Number: ZE24035

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
032	MW-13-36R_052324	Aqueous	MeFOSAA	PFAS by ID	3.0	J	ng/L	75
032	MW-13-36R_052324	Aqueous	PFBS	PFAS by ID	2.5	J	ng/L	75
032	MW-13-36R_052324	Aqueous	PFOSA	PFAS by ID	2.6	J	ng/L	75
032	MW-13-36R_052324	Aqueous	PFHxS	PFAS by ID	1.7	J	ng/L	75
032	MW-13-36R_052324	Aqueous	PFDA	PFAS by ID	20		ng/L	75
032	MW-13-36R_052324	Aqueous	PFHpA	PFAS by ID	27		ng/L	75
032	MW-13-36R_052324	Aqueous	PFHxA	PFAS by ID	32		ng/L	75
032	MW-13-36R_052324	Aqueous	PFNA	PFAS by ID	11		ng/L	75
032	MW-13-36R_052324	Aqueous	PFOA	PFAS by ID	56		ng/L	75
032	MW-13-36R_052324	Aqueous	PFPeA	PFAS by ID	28	Q	ng/L	75
032	MW-13-36R_052324	Aqueous	PFUdA	PFAS by ID	0.77	J	ng/L	75
032	MW-13-36R_052324	Aqueous	PFOS	PFAS by ID	35		ng/L	75
033	DUP-12_052324	Aqueous	EtFOSAA	PFAS by ID	4.5	J	ng/L	77
033	DUP-12_052324	Aqueous	MeFOSAA	PFAS by ID	3.7	J	ng/L	77
033	DUP-12_052324	Aqueous	PFBS	PFAS by ID	2.9	J	ng/L	77
033	DUP-12_052324	Aqueous	PFHpS	PFAS by ID	0.57	J	ng/L	77
033	DUP-12_052324	Aqueous	PFOSA	PFAS by ID	3.0	J	ng/L	77
033	DUP-12_052324	Aqueous	PFHxS	PFAS by ID	1.4	J	ng/L	77
033	DUP-12_052324	Aqueous	PFDA	PFAS by ID	21		ng/L	77
033	DUP-12_052324	Aqueous	PFDoA	PFAS by ID	0.42	J	ng/L	77
033	DUP-12_052324	Aqueous	PFHpA	PFAS by ID	28		ng/L	77
033	DUP-12_052324	Aqueous	PFHxA	PFAS by ID	33		ng/L	77
033	DUP-12_052324	Aqueous	PFNA	PFAS by ID	11		ng/L	77
033	DUP-12_052324	Aqueous	PFOA	PFAS by ID	56		ng/L	77
033	DUP-12_052324	Aqueous	PFUdA	PFAS by ID	0.74	J	ng/L	77
033	DUP-12_052324	Aqueous	PFOS	PFAS by ID	37		ng/L	77
033	DUP-12_052324	Aqueous	PFBA	PFAS by ID	200	HQ	ng/L	79
033	DUP-12_052324	Aqueous	PFPeA	PFAS by ID	25	HQ	ng/L	79
034	MW-14-67_052324	Aqueous	PFBS	PFAS by ID	3.6		ng/L	81
034	MW-14-67_052324	Aqueous	PFHxS	PFAS by ID	1.0	J	ng/L	81
034	MW-14-67_052324	Aqueous	PFBA	PFAS by ID	38		ng/L	81
034	MW-14-67_052324	Aqueous	PFDA	PFAS by ID	1.3	J	ng/L	81
034	MW-14-67_052324	Aqueous	PFHpA	PFAS by ID	29		ng/L	81
034	MW-14-67_052324	Aqueous	PFHxA	PFAS by ID	83		ng/L	81
034	MW-14-67_052324	Aqueous	PFNA	PFAS by ID	0.59	J	ng/L	81
034	MW-14-67_052324	Aqueous	PFOA	PFAS by ID	18		ng/L	81
034	MW-14-67_052324	Aqueous	PFPeA	PFAS by ID	56		ng/L	81
034	MW-14-67_052324	Aqueous	PFUdA	PFAS by ID	0.62	J	ng/L	81

(225 detections)

PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE24035-001**

Description: **MW-22-150_052324** Matrix: **Aqueous**

Date Sampled: **05/23/2024 1300** Project Name: **RACER PFAS**

Date Received: **05/24/2024** Project Number: **30214036.0370**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/18/2024 1435	OMNS	06/17/2024 1149	13114
2	SOP SPE	PFAS by ID SOP	1	06/28/2024 1713	OMNS	06/27/2024 1359	13571

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND	Q	6.9	0.42	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND	Q	6.9	0.58	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND	Q	6.9	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	**27619-97-2**	**PFAS by ID SOP**	**24**		**6.9**	**1.7**	**ng/L**	**1**
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	6.9	0.76	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.9	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	**919005-14-4**	**PFAS by ID SOP**	**0.45**	**J**	**6.9**	**0.42**	**ng/L**	**1**
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND	Q	6.9	0.65	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND	Q	6.9	0.81	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.5	0.36	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND	Q	3.5	0.67	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.5	0.43	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND	Q	3.5	0.62	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND	Q	3.5	0.53	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.5	0.52	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.5	0.48	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**2.6**	**J**	**3.5**	**0.52**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND	Q	3.5	0.46	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND	Q	3.5	0.41	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.5	0.39	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.5	0.60	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.5	0.40	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.5	0.72	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.5	0.47	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND	Q	3.5	0.52	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND	Q	3.5	0.46	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND	Q	3.5	0.54	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND	Q	3.5	1.7	ng/L	1

Surrogate	Run 1 Q	Run 1 % Recovery	Run 1 Acceptance Limits	Run 2 Q	Run 2 % Recovery	Run 2 Acceptance Limits
13C2_4:2FTS	N	198	25-150	HN	273	25-150
13C2_6:2FTS		150	25-150	HN	177	25-150
13C2_8:2FTS	N	7.0	25-150	H	101	25-150
13C2_PFDoA	N	0.00	25-150	H	93	25-150
13C2_PFTeDA	N	0.00	25-150	H	98	25-150
13C3_PFBS		66	25-150	H	96	25-150
13C3_PFHxS		79	25-150	H	95	25-150
13C3-HFPO-DA		76	25-150	H	70	25-150
13C4_PFBA		36	25-150	H	45	25-150
13C4_PFHpA		76	25-150	H	89	25-150
13C5_PFHxA		81	25-150	H	109	25-150
13C5_PFPeA		64	25-150	H	67	25-150
13C6_PFDA	N	1.0	25-150	H	96	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE24035-001**

Description: **MW-22-150_052324** Matrix: **Aqueous**

Date Sampled: **05/23/2024 1300** Project Name: **RACER PFAS**

Date Received: **05/24/2024** Project Number: **30214036.0370**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA	N	0.00	25-150	H	106	25-150
13C8_PFOA		84	25-150	H	95	25-150
13C8_PFOS	N	1.0	25-150	H	108	25-150
13C8_PFOSA	N	3.0	10-150	H	102	10-150
13C9_PFNA		49	25-150	H	103	25-150
d5-EtFOSAA	N	0.00	25-150	H	101	25-150
d3-MeFOSAA	N	0.00	25-150	H	96	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE24035-001**

Description: **MW-22-150_052324** Matrix: **Aqueous**

Date Sampled: **05/23/2024 1300** Project Name: **RACER PFAS**

Date Received: **05/24/2024** Project Number: **30214036.0370**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/18/2024 1435	OMNS	06/17/2024 1149	13114
2	SOP SPE	PFAS by ID SOP	1	06/28/2024 1713	OMNS	06/27/2024 1359	13571

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND	H	6.9	0.41	ng/L	2
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND	H	6.9	0.57	ng/L	2
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND	H	6.9	1.4	ng/L	2
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	HQ	6.9	1.7	ng/L	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	HQ	6.9	0.75	ng/L	2
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND	H	6.9	1.8	ng/L	2
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND	H	6.9	0.42	ng/L	2
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND	H	6.9	0.64	ng/L	2
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND	H	6.9	0.80	ng/L	2
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND	H	3.4	0.36	ng/L	2
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND	H	3.4	0.67	ng/L	2
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND	H	3.4	0.43	ng/L	2
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND	H	3.4	0.61	ng/L	2
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND	H	3.4	0.53	ng/L	2
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND	H	3.4	0.51	ng/L	2
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND	H	3.4	0.47	ng/L	2
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**2.1**	**HJ**	**3.4**	**0.52**	**ng/L**	**2**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND	H	3.4	0.45	ng/L	2
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND	H	3.4	0.41	ng/L	2
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND	H	3.4	0.38	ng/L	2
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND	H	3.4	0.59	ng/L	2
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND	H	3.4	0.40	ng/L	2
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**0.72**	**HJ**	**3.4**	**0.71**	**ng/L**	**2**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**1.1**	**HJ**	**3.4**	**0.47**	**ng/L**	**2**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND	H	3.4	0.51	ng/L	2
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND	H	3.4	0.45	ng/L	2
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND	H	3.4	0.54	ng/L	2
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND	H	3.4	1.7	ng/L	2

Surrogate	Run 1 Q	Run 1 % Recovery	Run 1 Acceptance Limits	Run 2 Q	Run 2 % Recovery	Run 2 Acceptance Limits
13C2_4:2FTS	N	198	25-150	HN	273	25-150
13C2_6:2FTS		150	25-150	HN	177	25-150
13C2_8:2FTS	N	7.0	25-150	H	101	25-150
13C2_PFDoA	N	0.00	25-150	H	93	25-150
13C2_PFTeDA	N	0.00	25-150	H	98	25-150
13C3_PFBS		66	25-150	H	96	25-150
13C3_PFHxS		79	25-150	H	95	25-150
13C3-HFPO-DA		76	25-150	H	70	25-150
13C4_PFBA		36	25-150	H	45	25-150
13C4_PFHpA		76	25-150	H	89	25-150
13C5_PFHxA		81	25-150	H	109	25-150
13C5_PFPeA		64	25-150	H	67	25-150
13C6_PFDA	N	1.0	25-150	H	96	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE24035-001**

Description: **MW-22-150_052324** Matrix: **Aqueous**

Date Sampled: **05/23/2024 1300** Project Name: **RACER PFAS**

Date Received: **05/24/2024** Project Number: **30214036.0370**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA	N	0.00	25-150	H	106	25-150
13C8_PFOA		84	25-150	H	95	25-150
13C8_PFOS	N	1.0	25-150	H	108	25-150
13C8_PFOSA	N	3.0	10-150	H	102	10-150
13C9_PFNA		49	25-150	H	103	25-150
d5-EtFOSAA	N	0.00	25-150	H	101	25-150
d3-MeFOSAA	N	0.00	25-150	H	96	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE24035-002**

Description: **MW-22-151_052324** Matrix: **Aqueous**

Date Sampled: **05/23/2024 1405** Project Name: **RACER PFAS**

Date Received: **05/24/2024** Project Number: **30214036.0370**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/18/2024 1445	OMNS	06/17/2024 1149	13114

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.8	0.41	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.8	0.56	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND	Q	6.8	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	6.8	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	6.8	0.74	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.8	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.8	0.41	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.8	0.64	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.8	0.79	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**8.1**		**3.4**	**0.35**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.4	0.66	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.4	0.42	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.4	0.60	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.4	0.52	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.4	0.50	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**1.6**	**J**	**3.4**	**0.47**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**9.7**		**3.4**	**0.51**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.4	0.40	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**3.7**		**3.4**	**0.38**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**7.7**		**3.4**	**0.58**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**0.50**	**J**	**3.4**	**0.39**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**7.6**		**3.4**	**0.70**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**12**		**3.4**	**0.46**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.4	0.53	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**4.1**		**3.4**	**1.7**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	225	25-150
13C2_6:2FTS	N	275	25-150
13C2_8:2FTS	N	172	25-150
13C2_PFDoA		86	25-150
13C2_PFTeDA		44	25-150
13C3_PFBS		72	25-150
13C3_PFHxS		92	25-150
13C3-HFPO-DA		72	25-150
13C4_PFBA		34	25-150
13C4_PFHpA		78	25-150
13C5_PFHxA		74	25-150
13C5_PFPeA		63	25-150
13C6_PFDA		101	25-150
13C7_PFUdA		95	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**
Laboratory ID: **ZE24035-002**
Description: **MW-22-151_052324**
Matrix: **Aqueous**
Date Sampled: **05/23/2024 1405**
Project Name: **RACER PFAS**
Date Received: **05/24/2024**
Project Number: **30214036.0370**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		105	25-150
13C8_PFOS		99	25-150
13C8_PFOSA		104	10-150
13C9_PFNA		117	25-150
d5-EtFOSAA		97	25-150
d3-MeFOSAA		106	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE24035-003**

Description: **MW-22-152_052324** Matrix: **Aqueous**

Date Sampled: **05/23/2024 1500** Project Name: **RACER PFAS**

Date Received: **05/24/2024** Project Number: **30214036.0370**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/18/2024 1456	OMNS	06/17/2024 1149	13114

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.7	0.40	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.7	0.56	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.7	1.3	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		6.7	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		6.7	0.73	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.7	1.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.7	0.41	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.7	0.63	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.7	0.78	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**4.5**		**3.4**	**0.35**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.4	0.65	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.4	0.42	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.4	0.60	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.4	0.50	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**2.0**	**J**	**3.4**	**0.46**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**4.6**		**3.4**	**0.50**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.4	0.44	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.4	0.40	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**1.2**	**J**	**3.4**	**0.38**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.4	0.58	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.4	0.39	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**2.9**	**J**	**3.4**	**0.70**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**3.0**	**J**	**3.4**	**0.46**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.4	0.50	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.4	0.44	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.4	0.53	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.4	1.7	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		134	25-150
13C2_6:2FTS		127	25-150
13C2_8:2FTS		101	25-150
13C2_PFDoA		84	25-150
13C2_PFTeDA		93	25-150
13C3_PFBS		89	25-150
13C3_PFHxS		95	25-150
13C3-HFPO-DA		95	25-150
13C4_PFBA		74	25-150
13C4_PFHpA		94	25-150
13C5_PFHxA		102	25-150
13C5_PFPeA		91	25-150
13C6_PFDA		104	25-150
13C7_PFUdA		85	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**
Laboratory ID: **ZE24035-003**
Description: **MW-22-152_052324**
Matrix: **Aqueous**
Date Sampled: **05/23/2024 1500**
Project Name: **RACER PFAS**
Date Received: **05/24/2024**
Project Number: **30214036.0370**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		107	25-150
13C8_PFOS		90	25-150
13C8_PFOSA		98	10-150
13C9_PFNA		92	25-150
d5-EtFOSAA		88	25-150
d3-MeFOSAA		87	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE24035-004**

Description: **MW-12-10R_052224** Matrix: **Aqueous**

Date Sampled: **05/22/2024 1035** Project Name: **RACER PFAS**

Date Received: **05/24/2024** Project Number: **30214036.0370**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/18/2024 1528	OMNS	06/17/2024 1149	13114

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.5	0.45	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.5	0.62	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.5	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.5	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.5	0.82	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.5	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.5	0.45	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.5	0.70	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.5	0.87	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.7	0.39	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.7	0.73	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.7	0.47	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.7	0.66	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.7	0.57	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.7	0.55	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**1.7**	**J**	**3.7**	**0.52**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**7.0**		**3.7**	**0.56**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.7	0.49	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.7	0.44	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**3.5**	**J**	**3.7**	**0.42**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.7	0.64	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**0.66**	**J**	**3.7**	**0.43**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**7.6**		**3.7**	**0.77**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**4.3**		**3.7**	**0.51**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.7	0.56	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.7	0.49	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.7	0.59	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**8.7**		**3.7**	**1.9**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	229	25-150
13C2_6:2FTS	N	243	25-150
13C2_8:2FTS		128	25-150
13C2_PFDoA		89	25-150
13C2_PFTeDA		96	25-150
13C3_PFBS		79	25-150
13C3_PFHxS		86	25-150
13C3-HFPO-DA		86	25-150
13C4_PFBA		42	25-150
13C4_PFHpA		89	25-150
13C5_PFHxA		81	25-150
13C5_PFPeA		70	25-150
13C6_PFDA		100	25-150
13C7_PFUdA		91	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE24035-004**

Description: **MW-12-10R_052224** Matrix: **Aqueous**

Date Sampled: **05/22/2024 1035** Project Name: **RACER PFAS**

Date Received: **05/24/2024** Project Number: **30214036.0370**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		103	25-150
13C8_PFOS		93	25-150
13C8_PFOSA		97	10-150
13C9_PFNA		94	25-150
d5-EtFOSAA		99	25-150
d3-MeFOSAA		93	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE24035-005**

Description: **MW-12-11_052224** Matrix: **Aqueous**

Date Sampled: **05/22/2024 1200** Project Name: **RACER PFAS**

Date Received: **05/24/2024** Project Number: **30214036.0370**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/18/2024 1538	OMNS	06/17/2024 1149	13114

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		8.0	0.48	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		8.0	0.66	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		8.0	1.6	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		8.0	2.0	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		8.0	0.87	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		8.0	2.1	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		8.0	0.48	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		8.0	0.75	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		8.0	0.93	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		4.0	0.41	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		4.0	0.77	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		4.0	0.50	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		4.0	0.71	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		4.0	0.61	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		4.0	0.59	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		4.0	0.55	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**6.8**		**4.0**	**0.60**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		4.0	0.52	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		4.0	0.47	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		4.0	0.45	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		4.0	0.69	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		4.0	0.46	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		4.0	0.83	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		4.0	0.54	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		4.0	0.60	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		4.0	0.53	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		4.0	0.62	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		4.0	2.0	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		130	25-150
13C2_6:2FTS		132	25-150
13C2_8:2FTS		91	25-150
13C2_PFDoA		89	25-150
13C2_PFTeDA		93	25-150
13C3_PFBS		84	25-150
13C3_PFHxS		95	25-150
13C3-HFPO-DA		92	25-150
13C4_PFBA		67	25-150
13C4_PFHpA		92	25-150
13C5_PFHxA		102	25-150
13C5_PFPeA		94	25-150
13C6_PFDA		85	25-150
13C7_PFUdA		90	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**
Laboratory ID: **ZE24035-005**
Description: **MW-12-11_052224**
Matrix: **Aqueous**
Date Sampled: **05/22/2024 1200**
Project Name: **RACER PFAS**
Date Received: **05/24/2024**
Project Number: **30214036.0370**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		108	25-150
13C8_PFOS		87	25-150
13C8_PFOSA		99	10-150
13C9_PFNA		101	25-150
d5-EtFOSAA		92	25-150
d3-MeFOSAA		98	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE24035-006**

Description: **MW-12-12_052224** Matrix: **Aqueous**

Date Sampled: **05/22/2024 1335** Project Name: **RACER PFAS**

Date Received: **05/24/2024** Project Number: **30214036.0370**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/18/2024 1610	OMNS	06/17/2024 1149	13114

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.9	0.48	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.9	0.66	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND	Q	7.9	1.6	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.9	2.0	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.9	0.87	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.9	2.1	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.9	0.48	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.9	0.74	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.9	0.93	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		4.0	0.41	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		4.0	0.77	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		4.0	0.49	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		4.0	0.71	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		4.0	0.61	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		4.0	0.59	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**2.0**	**J**	**4.0**	**0.55**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**43**		**4.0**	**0.60**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	**335-76-2**	**PFAS by ID SOP**	**5.3**		**4.0**	**0.52**	**ng/L**	**1**
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		4.0	0.47	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**43**		**4.0**	**0.44**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**140**		**4.0**	**0.68**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**3.9**	**J**	**4.0**	**0.46**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**98**		**4.0**	**0.82**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**75**		**4.0**	**0.54**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		4.0	0.59	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		4.0	0.52	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		4.0	0.62	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**19**		**4.0**	**2.0**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	217	25-150
13C2_6:2FTS	N	266	25-150
13C2_8:2FTS	N	151	25-150
13C2_PFDoA		93	25-150
13C2_PFTeDA		97	25-150
13C3_PFBS		83	25-150
13C3_PFHxS		87	25-150
13C3-HFPO-DA		67	25-150
13C4_PFBA		44	25-150
13C4_PFHpA		81	25-150
13C5_PFHxA		72	25-150
13C5_PFPeA		64	25-150
13C6_PFDA		97	25-150
13C7_PFUdA		95	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**		Laboratory ID: **ZE24035-006**
Description: **MW-12-12_052224**		Matrix: **Aqueous**
Date Sampled: **05/22/2024 1335**	Project Name: **RACER PFAS**	
Date Received: **05/24/2024**	Project Number: **30214036.0370**	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		98	25-150
13C8_PFOS		92	25-150
13C8_PFOSA		99	10-150
13C9_PFNA		98	25-150
d5-EtFOSAA		104	25-150
d3-MeFOSAA		99	25-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
ND = Not detected at or above the DL	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis			S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE24035-007**

Description: **MW-14-70_052224** Matrix: **Aqueous**

Date Sampled: **05/22/2024 1455** Project Name: **RACER PFAS**

Date Received: **05/24/2024** Project Number: **30214036.0370**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/18/2024 1621	OMNS	06/17/2024 1149	13114

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.7	0.46	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.7	0.64	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.7	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.7	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.7	0.84	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.7	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.7	0.47	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.7	0.72	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.7	0.90	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**7.7**		**3.8**	**0.40**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.8	0.75	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.8	0.48	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.8	0.68	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.8	0.59	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.8	0.57	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**2.9**	**J**	**3.8**	**0.53**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**56**		**3.8**	**0.58**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.8	0.51	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.8	0.45	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**64**		**3.8**	**0.43**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**140**		**3.8**	**0.66**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.8	0.44	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**32**		**3.8**	**0.80**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**170**		**3.8**	**0.52**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.8	0.58	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.8	0.51	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.8	0.60	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.8	1.9	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	223	25-150
13C2_6:2FTS	N	157	25-150
13C2_8:2FTS		87	25-150
13C2_PFDoA		96	25-150
13C2_PFTeDA		93	25-150
13C3_PFBS		88	25-150
13C3_PFHxS		96	25-150
13C3-HFPO-DA		85	25-150
13C4_PFBA		36	25-150
13C4_PFHpA		97	25-150
13C5_PFHxA		94	25-150
13C5_PFPeA		76	25-150
13C6_PFDA		91	25-150
13C7_PFUdA		88	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**		Laboratory ID: **ZE24035-007**
Description: **MW-14-70_052224**		Matrix: **Aqueous**
Date Sampled: **05/22/2024 1455**	Project Name: **RACER PFAS**	
Date Received: **05/24/2024**	Project Number: **30214036.0370**	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		105	25-150
13C8_PFOS		91	25-150
13C8_PFOSA		96	10-150
13C9_PFNA		99	25-150
d5-EtFOSAA		81	25-150
d3-MeFOSAA		78	25-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
ND = Not detected at or above the DL	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis			S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE24035-008**

Description: **MW-20-131_052224** Matrix: **Aqueous**

Date Sampled: **05/22/2024 1615** Project Name: **RACER PFAS**

Date Received: **05/24/2024** Project Number: **30214036.0370**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/18/2024 1632	OMNS	06/17/2024 1149	13114

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.1	0.43	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.1	0.59	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.1	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.1	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.1	0.78	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.1	0.43	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.1	0.67	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.1	0.83	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.6	0.37	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.6	0.69	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.6	0.44	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.6	0.63	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.6	0.55	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.6	0.53	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**2.4**	**J**	**3.6**	**0.49**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**18**		**3.6**	**0.53**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.6	0.47	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.6	0.42	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**20**		**3.6**	**0.40**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**25**		**3.6**	**0.61**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**1.1**	**J**	**3.6**	**0.41**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**31**		**3.6**	**0.74**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**29**		**3.6**	**0.48**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.6	0.53	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.6	0.47	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.6	0.56	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**2.9**	**J**	**3.6**	**1.8**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	230	25-150
13C2_6:2FTS	N	267	25-150
13C2_8:2FTS		124	25-150
13C2_PFDoA		93	25-150
13C2_PFTeDA		96	25-150
13C3_PFBS		79	25-150
13C3_PFHxS		104	25-150
13C3-HFPO-DA		63	25-150
13C4_PFBA		39	25-150
13C4_PFHpA		93	25-150
13C5_PFHxA		83	25-150
13C5_PFPeA		66	25-150
13C6_PFDA		102	25-150
13C7_PFUdA		94	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE24035-008**

Description: **MW-20-131_052224** Matrix: **Aqueous**

Date Sampled: **05/22/2024 1615** Project Name: **RACER PFAS**

Date Received: **05/24/2024** Project Number: **30214036.0370**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		104	25-150
13C8_PFOS		98	25-150
13C8_PFOSA		97	10-150
13C9_PFNA		108	25-150
d5-EtFOSAA		84	25-150
d3-MeFOSAA		90	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE24035-009**

Description: **MW-20-132_052324** Matrix: **Aqueous**

Date Sampled: **05/23/2024 1025** Project Name: **RACER PFAS**

Date Received: **05/24/2024** Project Number: **30214036.0370**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/18/2024 1642	OMNS	06/17/2024 1149	13114

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.1	0.43	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.1	0.58	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.1	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.1	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.1	0.77	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.1	0.43	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.1	0.66	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.1	0.82	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.5	0.37	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.5	0.69	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.5	0.44	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.5	0.63	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.5	0.54	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.5	0.52	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**2.1**	**J**	**3.5**	**0.49**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**14**		**3.5**	**0.53**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	**335-76-2**	**PFAS by ID SOP**	**2.1**	**J**	**3.5**	**0.46**	**ng/L**	**1**
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.5	0.42	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**17**		**3.5**	**0.39**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**16**		**3.5**	**0.61**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**4.8**		**3.5**	**0.41**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**24**		**3.5**	**0.73**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**20**		**3.5**	**0.48**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.5	0.53	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.5	0.47	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.5	0.55	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**11**		**3.5**	**1.8**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	213	25-150
13C2_6:2FTS	N	245	25-150
13C2_8:2FTS		120	25-150
13C2_PFDoA		88	25-150
13C2_PFTeDA		80	25-150
13C3_PFBS		88	25-150
13C3_PFHxS		86	25-150
13C3-HFPO-DA		76	25-150
13C4_PFBA		47	25-150
13C4_PFHpA		90	25-150
13C5_PFHxA		98	25-150
13C5_PFPeA		76	25-150
13C6_PFDA		94	25-150
13C7_PFUdA		87	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**
Laboratory ID: **ZE24035-009**
Description: **MW-20-132_052324**
Matrix: **Aqueous**
Date Sampled: **05/23/2024 1025**
Project Name: **RACER PFAS**
Date Received: **05/24/2024**
Project Number: **30214036.0370**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		106	25-150
13C8_PFOS		91	25-150
13C8_PFOSA		93	10-150
13C9_PFNA		101	25-150
d5-EtFOSAA		83	25-150
d3-MeFOSAA		88	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE24035-010**

Description: **P6-SB-07_052324** Matrix: **Aqueous**

Date Sampled: **05/23/2024 1555** Project Name: **RACER PFAS**

Date Received: **05/24/2024** Project Number: **30214036.0370**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/18/2024 1653	OMNS	06/17/2024 1149	13114
2	SOP SPE	PFAS by ID SOP	5	06/19/2024 1849	KMM2	06/17/2024 1149	13114

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.4	0.45	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.4	0.62	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.4	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.4	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.4	0.81	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.4	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.4	0.45	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.4	0.70	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.4	0.87	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**3.0**	**J**	**3.7**	**0.39**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.7	0.72	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.7	0.46	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.7	0.66	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.7	0.57	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	**2706-91-4**	**PFAS by ID SOP**	**0.93**	**J**	**3.7**	**0.55**	**ng/L**	**1**
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**2.8**	**J**	**3.7**	**0.51**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**190**		**3.7**	**0.56**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	**335-76-2**	**PFAS by ID SOP**	**18**		**3.7**	**0.49**	**ng/L**	**1**
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.7	0.44	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**480**		**19**	**2.1**	**ng/L**	**2**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**600**		**19**	**3.2**	**ng/L**	**2**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**81**		**3.7**	**0.43**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**610**		**19**	**3.9**	**ng/L**	**2**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**580**		**19**	**2.5**	**ng/L**	**2**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.7	0.56	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.7	0.49	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.7	0.58	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**30**		**3.7**	**1.9**	**ng/L**	**1**

Surrogate	Run 1 Q	Run 1 % Recovery	Run 1 Acceptance Limits	Run 2 Q	Run 2 % Recovery	Run 2 Acceptance Limits
13C2_4:2FTS	N	241	25-150	N	180	25-150
13C2_6:2FTS	N	183	25-150		135	25-150
13C2_8:2FTS		119	25-150		111	25-150
13C2_PFDoA		100	25-150		90	25-150
13C2_PFTeDA		93	25-150		93	25-150
13C3_PFBS		92	25-150		100	25-150
13C3_PFHxS		93	25-150		102	25-150
13C3-HFPO-DA		74	25-150		91	25-150
13C4_PFBA		53	25-150		100	25-150
13C4_PFHpA		90	25-150		101	25-150
13C5_PFHxA		89	25-150		114	25-150
13C5_PFPeA		77	25-150		113	25-150
13C6_PFDA		104	25-150		105	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE24035-010**

Description: **P6-SB-07_052324** Matrix: **Aqueous**

Date Sampled: **05/23/2024 1555** Project Name: **RACER PFAS**

Date Received: **05/24/2024** Project Number: **30214036.0370**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		94	25-150		96	25-150
13C8_PFOA		101	25-150		103	25-150
13C8_PFOS		92	25-150		106	25-150
13C8_PFOSA		100	10-150		99	10-150
13C9_PFNA		104	25-150		113	25-150
d5-EtFOSAA		88	25-150		98	25-150
d3-MeFOSAA		92	25-150		100	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE24035-011**

Description: **MW-22-143_052224** Matrix: **Aqueous**

Date Sampled: **05/22/2024 1325** Project Name: **RACER PFAS**

Date Received: **05/24/2024** Project Number: **30214036.0370**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/18/2024 1704	OMNS	06/17/2024 1149	13114

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.2	0.44	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.2	0.60	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.2	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.2	0.79	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.2	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.2	0.44	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.2	0.68	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.2	0.84	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**1.5**	**J**	**3.6**	**0.38**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.6	0.70	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.6	0.45	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.6	0.64	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.6	0.56	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.6	0.54	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**0.62**	**J**	**3.6**	**0.50**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**12**		**3.6**	**0.54**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.6	0.48	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.6	0.43	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**7.4**		**3.6**	**0.41**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**16**		**3.6**	**0.62**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.6	0.42	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**8.7**		**3.6**	**0.75**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**11**		**3.6**	**0.49**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.6	0.54	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.6	0.48	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.6	0.57	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.6	1.8	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		149	25-150
13C2_6:2FTS		124	25-150
13C2_8:2FTS		87	25-150
13C2_PFDoA		94	25-150
13C2_PFTeDA		79	25-150
13C3_PFBS		91	25-150
13C3_PFHxS		101	25-150
13C3-HFPO-DA		92	25-150
13C4_PFBA		60	25-150
13C4_PFHpA		98	25-150
13C5_PFHxA		100	25-150
13C5_PFPeA		95	25-150
13C6_PFDA		103	25-150
13C7_PFUdA		85	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE24035-011**

Description: **MW-22-143_052224** Matrix: **Aqueous**

Date Sampled: **05/22/2024 1325** Project Name: **RACER PFAS**

Date Received: **05/24/2024** Project Number: **30214036.0370**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		99	25-150
13C8_PFOS		93	25-150
13C8_PFOSA		94	10-150
13C9_PFNA		97	25-150
d5-EtFOSAA		81	25-150
d3-MeFOSAA		82	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE24035-012**

Description: **MW-22-158_052224** Matrix: **Aqueous**

Date Sampled: **05/22/2024 1435** Project Name: **RACER PFAS**

Date Received: **05/24/2024** Project Number: **30214036.0370**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/18/2024 1714	OMNS	06/17/2024 1149	13114

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.3	0.44	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.3	0.60	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.3	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.3	0.79	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.3	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.3	0.44	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.3	0.68	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.3	0.85	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**1.4**	**J**	**3.6**	**0.38**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.6	0.71	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.6	0.45	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.6	0.65	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.6	0.56	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.6	0.54	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.6	0.50	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**4.9**		**3.6**	**0.54**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.6	0.48	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.6	0.43	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.6	0.41	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**2.5**	**J**	**3.6**	**0.62**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.6	0.42	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**1.2**	**J**	**3.6**	**0.75**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**2.9**	**J**	**3.6**	**0.49**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.6	0.54	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.6	0.48	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.6	0.57	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.6	1.8	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		128	25-150
13C2_6:2FTS		116	25-150
13C2_8:2FTS		89	25-150
13C2_PFDoA		93	25-150
13C2_PFTeDA		93	25-150
13C3_PFBS		91	25-150
13C3_PFHxS		99	25-150
13C3-HFPO-DA		93	25-150
13C4_PFBA		68	25-150
13C4_PFHpA		95	25-150
13C5_PFHxA		96	25-150
13C5_PFPeA		97	25-150
13C6_PFDA		94	25-150
13C7_PFUdA		89	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**
Laboratory ID: **ZE24035-012**
Description: **MW-22-158_052224**
Matrix: **Aqueous**
Date Sampled: **05/22/2024 1435**
Project Name: **RACER PFAS**
Date Received: **05/24/2024**
Project Number: **30214036.0370**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		110	25-150
13C8_PFOS		92	25-150
13C8_PFOSA		93	10-150
13C9_PFNA		93	25-150
d5-EtFOSAA		76	25-150
d3-MeFOSAA		78	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE24035-013**

Description: **MW-22-144_052224** Matrix: **Aqueous**

Date Sampled: **05/22/2024 1545** Project Name: **RACER PFAS**

Date Received: **05/24/2024** Project Number: **30214036.0370**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/18/2024 1725	OMNS	06/17/2024 1149	13114

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.6	0.40	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.6	0.55	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.6	1.3	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		6.6	1.6	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		6.6	0.72	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.6	1.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.6	0.40	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.6	0.62	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.6	0.77	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**2.7**	**J**	**3.3**	**0.34**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.3	0.64	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.3	0.41	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.3	0.59	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.3	0.50	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.3	0.49	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**4.2**		**3.3**	**0.45**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**7.7**		**3.3**	**0.49**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.3	0.43	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.3	0.39	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**7.7**		**3.3**	**0.37**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**13**		**3.3**	**0.57**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**0.73**	**J**	**3.3**	**0.38**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**17**		**3.3**	**0.68**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**13**		**3.3**	**0.45**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.3	0.49	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.3	0.44	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.3	0.52	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**3.7**		**3.3**	**1.6**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		119	25-150
13C2_6:2FTS		116	25-150
13C2_8:2FTS		83	25-150
13C2_PFDoA		95	25-150
13C2_PFTeDA		90	25-150
13C3_PFBS		87	25-150
13C3_PFHxS		94	25-150
13C3-HFPO-DA		93	25-150
13C4_PFBA		73	25-150
13C4_PFHpA		88	25-150
13C5_PFHxA		106	25-150
13C5_PFPeA		99	25-150
13C6_PFDA		93	25-150
13C7_PFUdA		89	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE24035-013**

Description: **MW-22-144_052224** Matrix: **Aqueous**

Date Sampled: **05/22/2024 1545** Project Name: **RACER PFAS**

Date Received: **05/24/2024** Project Number: **30214036.0370**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		103	25-150
13C8_PFOS		85	25-150
13C8_PFOSA		99	10-150
13C9_PFNA		96	25-150
d5-EtFOSAA		77	25-150
d3-MeFOSAA		77	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE24035-014**

Description: **MW-22-145_052224** Matrix: **Aqueous**

Date Sampled: **05/22/2024 1630** Project Name: **RACER PFAS**

Date Received: **05/24/2024** Project Number: **30214036.0370**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/18/2024 1735	OMNS	06/17/2024 1149	13114

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.2	0.43	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.2	0.60	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.2	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.2	0.79	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.2	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.2	0.44	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.2	0.68	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.2	0.84	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**3.9**		**3.6**	**0.37**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.6	0.70	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	**375-92-8**	**PFAS by ID SOP**	**0.91**	**J**	**3.6**	**0.45**	**ng/L**	**1**
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.6	0.64	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.6	0.55	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	**2706-91-4**	**PFAS by ID SOP**	**0.72**	**J**	**3.6**	**0.54**	**ng/L**	**1**
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**3.1**	**J**	**3.6**	**0.50**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**7.6**		**3.6**	**0.54**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.6	0.47	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.6	0.43	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**9.4**		**3.6**	**0.40**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**13**		**3.6**	**0.62**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**2.1**	**J**	**3.6**	**0.42**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**29**		**3.6**	**0.75**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**13**		**3.6**	**0.49**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.6	0.54	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.6	0.48	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.6	0.56	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**14**		**3.6**	**1.8**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		85	25-150
13C2_6:2FTS		113	25-150
13C2_8:2FTS		86	25-150
13C2_PFDoA		94	25-150
13C2_PFTeDA		96	25-150
13C3_PFBS		97	25-150
13C3_PFHxS		90	25-150
13C3-HFPO-DA		89	25-150
13C4_PFBA		72	25-150
13C4_PFHpA		100	25-150
13C5_PFHxA		103	25-150
13C5_PFPeA		97	25-150
13C6_PFDA		95	25-150
13C7_PFUdA		87	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**
Laboratory ID: **ZE24035-014**
Description: **MW-22-145_052224**
Matrix: **Aqueous**
Date Sampled: **05/22/2024 1630**
Project Name: **RACER PFAS**
Date Received: **05/24/2024**
Project Number: **30214036.0370**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		109	25-150
13C8_PFOS		87	25-150
13C8_PFOSA		93	10-150
13C9_PFNA		95	25-150
d5-EtFOSAA		77	25-150
d3-MeFOSAA		78	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE24035-015**

Description: **MW-22-160_052224** Matrix: **Aqueous**

Date Sampled: **05/22/2024 1745** Project Name: **RACER PFAS**

Date Received: **05/24/2024** Project Number: **30214036.0370**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/18/2024 1746	OMNS	06/17/2024 1149	13114

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.9	0.42	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.9	0.58	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.9	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		6.9	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		6.9	0.76	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.9	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.9	0.42	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.9	0.65	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.9	0.81	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.5	0.36	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.5	0.67	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.5	0.43	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.5	0.62	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.5	0.53	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.5	0.52	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.5	0.48	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**1.2**	**J**	**3.5**	**0.52**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.5	0.46	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.5	0.41	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.5	0.39	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.5	0.60	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.5	0.40	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.5	0.72	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.5	0.47	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.5	0.52	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.5	0.46	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.5	0.54	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.5	1.7	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		117	25-150
13C2_6:2FTS		121	25-150
13C2_8:2FTS		88	25-150
13C2_PFDoA		91	25-150
13C2_PFTeDA		76	25-150
13C3_PFBS		93	25-150
13C3_PFHxS		102	25-150
13C3-HFPO-DA		85	25-150
13C4_PFBA		68	25-150
13C4_PFHpA		104	25-150
13C5_PFHxA		104	25-150
13C5_PFPeA		108	25-150
13C6_PFDA		92	25-150
13C7_PFUdA		97	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**
Laboratory ID: **ZE24035-015**
Description: **MW-22-160_052224**
Matrix: **Aqueous**
Date Sampled: **05/22/2024 1745**
Project Name: **RACER PFAS**
Date Received: **05/24/2024**
Project Number: **30214036.0370**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		108	25-150
13C8_PFOS		87	25-150
13C8_PFOSA		94	10-150
13C9_PFNA		93	25-150
d5-EtFOSAA		78	25-150
d3-MeFOSAA		73	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE24035-016**

Description: **MW-22-146_052224** Matrix: **Aqueous**

Date Sampled: **05/22/2024 1845** Project Name: **RACER PFAS**

Date Received: **05/24/2024** Project Number: **30214036.0370**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/18/2024 1818	OMNS	06/17/2024 1149	13114

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.7	0.41	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.7	0.56	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.7	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	6.7	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	6.7	0.74	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.7	1.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.7	0.41	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.7	0.63	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.7	0.79	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**5.0**		**3.4**	**0.35**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.4	0.66	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.4	0.42	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.4	0.60	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.4	0.52	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.4	0.50	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**0.98**	**J**	**3.4**	**0.46**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**10**		**3.4**	**0.51**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.4	0.44	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.4	0.40	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**1.0**	**J**	**3.4**	**0.38**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**2.9**	**J**	**3.4**	**0.58**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.4	0.39	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**3.5**		**3.4**	**0.70**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**2.1**	**J**	**3.4**	**0.46**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.4	0.50	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.4	0.53	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**5.0**		**3.4**	**1.7**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	195	25-150
13C2_6:2FTS	N	184	25-150
13C2_8:2FTS		106	25-150
13C2_PFDoA		92	25-150
13C2_PFTeDA		92	25-150
13C3_PFBS		70	25-150
13C3_PFHxS		98	25-150
13C3-HFPO-DA		74	25-150
13C4_PFBA		40	25-150
13C4_PFHpA		100	25-150
13C5_PFHxA		87	25-150
13C5_PFPeA		76	25-150
13C6_PFDA		93	25-150
13C7_PFUdA		86	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**
Laboratory ID: **ZE24035-016**
Description: **MW-22-146_052224**
Matrix: **Aqueous**
Date Sampled: **05/22/2024 1845**
Project Name: **RACER PFAS**
Date Received: **05/24/2024**
Project Number: **30214036.0370**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		122	25-150
13C8_PFOS		94	25-150
13C8_PFOSA		102	10-150
13C9_PFNA		112	25-150
d5-EtFOSAA		73	25-150
d3-MeFOSAA		84	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE24035-017**

Description: **DUP-14_052224** Matrix: **Aqueous**

Date Sampled: **05/22/2024** Project Name: **RACER PFAS**

Date Received: **05/24/2024** Project Number: **30214036.0370**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/18/2024 1850	OMNS	06/17/2024 1150	13115

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.6	0.40	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.6	0.55	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.6	1.3	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		6.6	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		6.6	0.72	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.6	1.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.6	0.40	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.6	0.62	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.6	0.77	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**2.5**	**J**	**3.3**	**0.34**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.3	0.64	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.3	0.41	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.3	0.59	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.3	0.51	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.3	0.49	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**3.6**		**3.3**	**0.46**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**6.9**		**3.3**	**0.50**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.3	0.43	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.3	0.39	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**6.8**		**3.3**	**0.37**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**12**		**3.3**	**0.57**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**0.66**	**J**	**3.3**	**0.38**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**15**		**3.3**	**0.68**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**12**		**3.3**	**0.45**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.3	0.49	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.3	0.44	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.3	0.52	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**3.3**		**3.3**	**1.7**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		107	25-150
13C2_6:2FTS		131	25-150
13C2_8:2FTS		92	25-150
13C2_PFDoA		103	25-150
13C2_PFTeDA		97	25-150
13C3_PFBS		93	25-150
13C3_PFHxS		88	25-150
13C3-HFPO-DA		98	25-150
13C4_PFBA		76	25-150
13C4_PFHpA		99	25-150
13C5_PFHxA		100	25-150
13C5_PFPeA		108	25-150
13C6_PFDA		99	25-150
13C7_PFUdA		95	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE24035-017**

Description: **DUP-14_052224** Matrix: **Aqueous**

Date Sampled: **05/22/2024** Project Name: **RACER PFAS**

Date Received: **05/24/2024** Project Number: **30214036.0370**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		119	25-150
13C8_PFOS		94	25-150
13C8_PFOSA		99	10-150
13C9_PFNA		100	25-150
d5-EtFOSAA		79	25-150
d3-MeFOSAA		80	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE24035-018**

Description: **MW-22-148_052324** Matrix: **Aqueous**

Date Sampled: **05/23/2024 0935** Project Name: **RACER PFAS**

Date Received: **05/24/2024** Project Number: **30214036.0370**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/18/2024 1900	OMNS	06/17/2024 1150	13115

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.1	0.43	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.1	0.59	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.1	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.1	0.78	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.1	0.43	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.1	0.67	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.1	0.83	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**2.0**	**J**	**3.6**	**0.37**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.6	0.69	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.6	0.44	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.6	0.63	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.6	0.55	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.6	0.53	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.6	0.49	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		3.6	0.53	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.6	0.47	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.6	0.42	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.6	0.40	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.6	0.61	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.6	0.41	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.6	0.74	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.6	0.48	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.6	0.53	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.6	0.47	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.6	0.56	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.6	1.8	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		110	25-150
13C2_6:2FTS		121	25-150
13C2_8:2FTS		90	25-150
13C2_PFDoA		94	25-150
13C2_PFTeDA		97	25-150
13C3_PFBS		89	25-150
13C3_PFHxS		97	25-150
13C3-HFPO-DA		101	25-150
13C4_PFBA		79	25-150
13C4_PFHpA		99	25-150
13C5_PFHxA		100	25-150
13C5_PFPeA		108	25-150
13C6_PFDA		98	25-150
13C7_PFUdA		91	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE24035-018**

Description: **MW-22-148_052324** Matrix: **Aqueous**

Date Sampled: **05/23/2024 0935** Project Name: **RACER PFAS**

Date Received: **05/24/2024** Project Number: **30214036.0370**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		108	25-150
13C8_PFOS		95	25-150
13C8_PFOSA		98	10-150
13C9_PFNA		97	25-150
d5-EtFOSAA		79	25-150
d3-MeFOSAA		87	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE24035-019**

Description: **MW-22-147_052324** Matrix: **Aqueous**

Date Sampled: **05/23/2024 1020** Project Name: **RACER PFAS**

Date Received: **05/24/2024** Project Number: **30214036.0370**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/18/2024 1911	OMNS	06/17/2024 1150	13115

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.8	0.41	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.8	0.56	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.8	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		6.8	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	6.8	0.74	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.8	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.8	0.41	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.8	0.63	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.8	0.79	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**3.2**	**J**	**3.4**	**0.35**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.4	0.66	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.4	0.42	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.4	0.60	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.4	0.52	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.4	0.50	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**1.9**	**J**	**3.4**	**0.47**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**5.4**		**3.4**	**0.51**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.4	0.44	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.4	0.40	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**1.1**	**J**	**3.4**	**0.38**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**2.1**	**J**	**3.4**	**0.58**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.4	0.39	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**3.4**		**3.4**	**0.70**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**1.9**	**J**	**3.4**	**0.46**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.4	0.53	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**2.6**	**J**	**3.4**	**1.7**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	172	25-150
13C2_6:2FTS		147	25-150
13C2_8:2FTS		96	25-150
13C2_PFDoA		97	25-150
13C2_PFTeDA		95	25-150
13C3_PFBS		96	25-150
13C3_PFHxS		102	25-150
13C3-HFPO-DA		86	25-150
13C4_PFBA		58	25-150
13C4_PFHpA		101	25-150
13C5_PFHxA		97	25-150
13C5_PFPeA		100	25-150
13C6_PFDA		101	25-150
13C7_PFUdA		95	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**
Laboratory ID: **ZE24035-019**
Description: **MW-22-147_052324**
Matrix: **Aqueous**
Date Sampled: **05/23/2024 1020**
Project Name: **RACER PFAS**
Date Received: **05/24/2024**
Project Number: **30214036.0370**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		106	25-150
13C8_PFOS		95	25-150
13C8_PFOSA		99	10-150
13C9_PFNA		97	25-150
d5-EtFOSAA		80	25-150
d3-MeFOSAA		82	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE24035-020**

Description: **MW-22-149_052324** Matrix: **Aqueous**

Date Sampled: **05/23/2024 1135** Project Name: **RACER PFAS**

Date Received: **05/24/2024** Project Number: **30214036.0370**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/18/2024 1922	OMNS	06/17/2024 1150	13115

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.8	0.41	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.8	0.56	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.8	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		6.8	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		6.8	0.74	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.8	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.8	0.41	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.8	0.64	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.8	0.79	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**0.87**	**J**	**3.4**	**0.35**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.4	0.66	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.4	0.42	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.4	0.61	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	**754-91-6**	**PFAS by ID SOP**	**0.52**	**J**	**3.4**	**0.52**	**ng/L**	**1**
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**0.61**	**J**	**3.4**	**0.47**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**0.65**	**J**	**3.4**	**0.51**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.4	0.40	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**0.63**	**J**	**3.4**	**0.38**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.4	0.59	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**1.1**	**J**	**3.4**	**0.39**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**2.1**	**J**	**3.4**	**0.71**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.4	0.46	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.4	0.53	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.4	1.7	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		91	25-150
13C2_6:2FTS		130	25-150
13C2_8:2FTS		94	25-150
13C2_PFDoA		101	25-150
13C2_PFTeDA		99	25-150
13C3_PFBS		98	25-150
13C3_PFHxS		98	25-150
13C3-HFPO-DA		98	25-150
13C4_PFBA		84	25-150
13C4_PFHpA		103	25-150
13C5_PFHxA		103	25-150
13C5_PFPeA		107	25-150
13C6_PFDA		101	25-150
13C7_PFUdA		90	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE24035-020**

Description: **MW-22-149_052324** Matrix: **Aqueous**

Date Sampled: **05/23/2024 1135** Project Name: **RACER PFAS**

Date Received: **05/24/2024** Project Number: **30214036.0370**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		112	25-150
13C8_PFOS		90	25-150
13C8_PFOSA		105	10-150
13C9_PFNA		97	25-150
d5-EtFOSAA		84	25-150
d3-MeFOSAA		87	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE24035-021**

Description: **MW-21-133_052224** Matrix: **Aqueous**

Date Sampled: **05/22/2024 1025** Project Name: **RACER PFAS**

Date Received: **05/24/2024** Project Number: **30214036.0370**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/18/2024 1932	OMNS	06/17/2024 1150	13115

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.6	0.46	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.6	0.63	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.6	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.6	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.6	0.83	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.6	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.6	0.46	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.6	0.71	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.6	0.89	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**2.0**	**J**	**3.8**	**0.39**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.8	0.74	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.8	0.47	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.8	0.68	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.8	0.58	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	**2706-91-4**	**PFAS by ID SOP**	**0.67**	**J**	**3.8**	**0.57**	**ng/L**	**1**
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**1.8**	**J**	**3.8**	**0.53**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**17**		**3.8**	**0.57**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.8	0.50	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.8	0.45	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**21**		**3.8**	**0.43**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**24**		**3.8**	**0.65**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**2.3**	**J**	**3.8**	**0.44**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**55**		**3.8**	**0.79**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**16**		**3.8**	**0.52**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.8	0.57	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.8	0.50	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.8	0.60	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**4.8**		**3.8**	**1.9**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	168	25-150
13C2_6:2FTS	N	159	25-150
13C2_8:2FTS		113	25-150
13C2_PFDoA		93	25-150
13C2_PFTeDA		98	25-150
13C3_PFBS		98	25-150
13C3_PFHxS		109	25-150
13C3-HFPO-DA		88	25-150
13C4_PFBA		69	25-150
13C4_PFHpA		103	25-150
13C5_PFHxA		103	25-150
13C5_PFPeA		95	25-150
13C6_PFDA		106	25-150
13C7_PFUdA		96	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE24035-021**

Description: **MW-21-133_052224** Matrix: **Aqueous**

Date Sampled: **05/22/2024 1025** Project Name: **RACER PFAS**

Date Received: **05/24/2024** Project Number: **30214036.0370**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		113	25-150
13C8_PFOS		103	25-150
13C8_PFOSA		103	10-150
13C9_PFNA		109	25-150
d5-EtFOSAA		84	25-150
d3-MeFOSAA		87	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE24035-022**

Description: **MW-21-134_052224** Matrix: **Aqueous**

Date Sampled: **05/22/2024 1150** Project Name: **RACER PFAS**

Date Received: **05/24/2024** Project Number: **30214036.0370**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/18/2024 1943	OMNS	06/17/2024 1150	13115

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.8	0.47	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.8	0.65	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.8	1.6	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.8	2.0	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.8	0.86	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.8	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.8	0.47	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.8	0.74	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.8	0.91	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**2.6**	**J**	**3.9**	**0.41**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.9	0.76	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.9	0.49	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.9	0.70	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.9	0.60	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	**2706-91-4**	**PFAS by ID SOP**	**0.64**	**J**	**3.9**	**0.58**	**ng/L**	**1**
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**2.0**	**J**	**3.9**	**0.54**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**11**		**3.9**	**0.59**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.9	0.51	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.9	0.46	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**16**		**3.9**	**0.44**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**17**		**3.9**	**0.67**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**0.96**	**J**	**3.9**	**0.45**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**32**		**3.9**	**0.81**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**14**		**3.9**	**0.53**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.9	0.59	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.9	0.52	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.9	0.61	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**4.4**		**3.9**	**2.0**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	155	25-150
13C2_6:2FTS		132	25-150
13C2_8:2FTS		101	25-150
13C2_PFDoA		105	25-150
13C2_PFTeDA		103	25-150
13C3_PFBS		101	25-150
13C3_PFHxS		114	25-150
13C3-HFPO-DA		99	25-150
13C4_PFBA		76	25-150
13C4_PFHpA		109	25-150
13C5_PFHxA		109	25-150
13C5_PFPeA		109	25-150
13C6_PFDA		105	25-150
13C7_PFUdA		98	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE24035-022**

Description: **MW-21-134_052224** Matrix: **Aqueous**

Date Sampled: **05/22/2024 1150** Project Name: **RACER PFAS**

Date Received: **05/24/2024** Project Number: **30214036.0370**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		111	25-150
13C8_PFOS		100	25-150
13C8_PFOSA		106	10-150
13C9_PFNA		99	25-150
d5-EtFOSAA		90	25-150
d3-MeFOSAA		85	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE24035-023**

Description: **MW-21-135_052224** Matrix: **Aqueous**

Date Sampled: **05/22/2024 1345** Project Name: **RACER PFAS**

Date Received: **05/24/2024** Project Number: **30214036.0370**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/18/2024 1954	OMNS	06/17/2024 1150	13115

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		8.0	0.48	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		8.0	0.66	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		8.0	1.6	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	8.0	2.0	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	8.0	0.87	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		8.0	2.1	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		8.0	0.48	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		8.0	0.75	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		8.0	0.93	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**1.7**	**J**	**4.0**	**0.41**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		4.0	0.78	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		4.0	0.50	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		4.0	0.71	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		4.0	0.61	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	**2706-91-4**	**PFAS by ID SOP**	**1.2**	**J**	**4.0**	**0.59**	**ng/L**	**1**
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**2.6**	**J**	**4.0**	**0.55**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**9.3**		**4.0**	**0.60**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		4.0	0.52	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		4.0	0.47	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**37**		**4.0**	**0.45**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**23**		**4.0**	**0.69**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**1.9**	**J**	**4.0**	**0.46**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**57**		**4.0**	**0.83**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**16**		**4.0**	**0.54**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		4.0	0.60	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		4.0	0.53	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		4.0	0.63	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**2.0**	**J**	**4.0**	**2.0**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	199	25-150
13C2_6:2FTS	N	161	25-150
13C2_8:2FTS		99	25-150
13C2_PFDoA		95	25-150
13C2_PFTeDA		99	25-150
13C3_PFBS		101	25-150
13C3_PFHxS		106	25-150
13C3-HFPO-DA		86	25-150
13C4_PFBA		69	25-150
13C4_PFHpA		103	25-150
13C5_PFHxA		109	25-150
13C5_PFPeA		100	25-150
13C6_PFDA		95	25-150
13C7_PFUdA		100	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**
Laboratory ID: **ZE24035-023**
Description: **MW-21-135_052224**
Matrix: **Aqueous**
Date Sampled: **05/22/2024 1345**
Project Name: **RACER PFAS**
Date Received: **05/24/2024**
Project Number: **30214036.0370**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		110	25-150
13C8_PFOS		98	25-150
13C8_PFOSA		103	10-150
13C9_PFNA		110	25-150
d5-EtFOSAA		86	25-150
d3-MeFOSAA		82	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE24035-024**

Description: **MW-21-136_052224** Matrix: **Aqueous**

Date Sampled: **05/22/2024 1530** Project Name: **RACER PFAS**

Date Received: **05/24/2024** Project Number: **30214036.0370**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/18/2024 2004	OMNS	06/17/2024 1150	13115

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.4	0.44	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.4	0.61	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.4	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.4	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.4	0.80	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.4	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.4	0.44	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.4	0.69	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.4	0.86	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**0.59**	**J**	**3.7**	**0.38**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.7	0.72	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.7	0.46	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.7	0.65	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.7	0.56	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.7	0.55	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.7	0.51	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**1.2**	**J**	**3.7**	**0.55**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.7	0.48	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.7	0.43	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.7	0.41	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.7	0.63	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.7	0.42	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.7	0.76	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**0.56**	**J**	**3.7**	**0.50**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.7	0.55	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.7	0.49	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.7	0.58	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.7	1.8	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		118	25-150
13C2_6:2FTS		136	25-150
13C2_8:2FTS		95	25-150
13C2_PFDoA		105	25-150
13C2_PFTeDA		98	25-150
13C3_PFBS		96	25-150
13C3_PFHxS		101	25-150
13C3-HFPO-DA		100	25-150
13C4_PFBA		82	25-150
13C4_PFHpA		106	25-150
13C5_PFHxA		104	25-150
13C5_PFPeA		106	25-150
13C6_PFDA		97	25-150
13C7_PFUdA		93	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**
Laboratory ID: **ZE24035-024**
Description: **MW-21-136_052224**
Matrix: **Aqueous**
Date Sampled: **05/22/2024 1530**
Project Name: **RACER PFAS**
Date Received: **05/24/2024**
Project Number: **30214036.0370**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		115	25-150
13C8_PFOS		91	25-150
13C8_PFOSA		104	10-150
13C9_PFNA		100	25-150
d5-EtFOSAA		85	25-150
d3-MeFOSAA		84	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE24035-025**

Description: **MW-21-137_052324** Matrix: **Aqueous**

Date Sampled: **05/23/2024 0935** Project Name: **RACER PFAS**

Date Received: **05/24/2024** Project Number: **30214036.0370**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/18/2024 2015	OMNS	06/17/2024 1150	13115

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.9	0.48	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.9	0.65	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.9	1.6	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.9	2.0	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.9	0.86	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.9	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.9	0.48	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.9	0.74	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.9	0.92	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.9	0.41	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.9	0.77	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.9	0.49	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.9	0.70	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.9	0.60	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.9	0.59	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.9	0.54	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		3.9	0.59	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.9	0.52	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.9	0.46	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.9	0.44	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.9	0.68	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.9	0.46	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.9	0.82	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.9	0.54	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.9	0.59	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.9	0.52	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.9	0.62	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.9	2.0	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		123	25-150
13C2_6:2FTS		129	25-150
13C2_8:2FTS		84	25-150
13C2_PFDoA		105	25-150
13C2_PFTeDA		97	25-150
13C3_PFBS		94	25-150
13C3_PFHxS		104	25-150
13C3-HFPO-DA		100	25-150
13C4_PFBA		64	25-150
13C4_PFHpA		100	25-150
13C5_PFHxA		107	25-150
13C5_PFPeA		99	25-150
13C6_PFDA		89	25-150
13C7_PFUdA		93	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**
Laboratory ID: **ZE24035-025**
Description: **MW-21-137_052324**
Matrix: **Aqueous**
Date Sampled: **05/23/2024 0935**
Project Name: **RACER PFAS**
Date Received: **05/24/2024**
Project Number: **30214036.0370**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		112	25-150
13C8_PFOS		89	25-150
13C8_PFOSA		103	10-150
13C9_PFNA		96	25-150
d5-EtFOSAA		82	25-150
d3-MeFOSAA		80	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE24035-026**

Description: **MW-21-138_052324** Matrix: **Aqueous**

Date Sampled: **05/23/2024 1055** Project Name: **RACER PFAS**

Date Received: **05/24/2024** Project Number: **30214036.0370**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/18/2024 2047	OMNS	06/17/2024 1150	13115

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.8	0.47	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.8	0.64	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.8	1.6	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.8	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.8	0.85	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.8	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.8	0.47	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.8	0.73	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.8	0.90	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.9	0.40	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.9	0.75	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.9	0.48	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.9	0.69	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.9	0.59	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.9	0.58	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.9	0.53	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		3.9	0.58	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.9	0.51	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.9	0.46	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.9	0.43	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.9	0.67	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.9	0.45	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.9	0.80	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.9	0.53	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.9	0.58	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.9	0.51	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.9	0.61	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.9	1.9	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		122	25-150
13C2_6:2FTS		122	25-150
13C2_8:2FTS		96	25-150
13C2_PFDoA		99	25-150
13C2_PFTeDA		103	25-150
13C3_PFBS		95	25-150
13C3_PFHxS		108	25-150
13C3-HFPO-DA		95	25-150
13C4_PFBA		63	25-150
13C4_PFHpA		103	25-150
13C5_PFHxA		113	25-150
13C5_PFPeA		107	25-150
13C6_PFDA		97	25-150
13C7_PFUdA		98	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE24035-026**

Description: **MW-21-138_052324** Matrix: **Aqueous**

Date Sampled: **05/23/2024 1055** Project Name: **RACER PFAS**

Date Received: **05/24/2024** Project Number: **30214036.0370**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		108	25-150
13C8_PFOS		106	25-150
13C8_PFOSA		102	10-150
13C9_PFNA		111	25-150
d5-EtFOSAA		93	25-150
d3-MeFOSAA		89	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE24035-027**

Description: **MW-04-05(6)_052324** Matrix: **Aqueous**

Date Sampled: **05/23/2024 1305** Project Name: **RACER PFAS**

Date Received: **05/24/2024** Project Number: **30214036.0370**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/18/2024 2119	OMNS	06/17/2024 1150	13115

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.5	0.45	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.5	0.62	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.5	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.5	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.5	0.82	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.5	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.5	0.45	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.5	0.70	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.5	0.87	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.7	0.39	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.7	0.73	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.7	0.47	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.7	0.66	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.7	0.57	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.7	0.55	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**2.0**	**J**	**3.7**	**0.51**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**15**		**3.7**	**0.56**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.7	0.49	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.7	0.44	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**21**		**3.7**	**0.42**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**29**		**3.7**	**0.64**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**0.68**	**J**	**3.7**	**0.43**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**32**		**3.7**	**0.77**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**26**		**3.7**	**0.51**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.7	0.56	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.7	0.49	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.7	0.58	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.7	1.9	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	244	25-150
13C2_6:2FTS	N	315	25-150
13C2_8:2FTS		142	25-150
13C2_PFDoA		109	25-150
13C2_PFTeDA		99	25-150
13C3_PFBS		79	25-150
13C3_PFHxS		105	25-150
13C3-HFPO-DA		75	25-150
13C4_PFBA		42	25-150
13C4_PFHpA		94	25-150
13C5_PFHxA		87	25-150
13C5_PFPeA		68	25-150
13C6_PFDA		108	25-150
13C7_PFUdA		99	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE24035-027**

Description: **MW-04-05(6)_052324** Matrix: **Aqueous**

Date Sampled: **05/23/2024 1305** Project Name: **RACER PFAS**

Date Received: **05/24/2024** Project Number: **30214036.0370**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		114	25-150
13C8_PFOS		108	25-150
13C8_PFOSA		99	10-150
13C9_PFNA		114	25-150
d5-EtFOSAA		98	25-150
d3-MeFOSAA		96	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE24035-028**

Description: **MW-04-06R_052224** Matrix: **Aqueous**

Date Sampled: **05/22/2024 1115** Project Name: **RACER PFAS**

Date Received: **05/24/2024** Project Number: **30214036.0370**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/18/2024 2129	OMNS	06/17/2024 1150	13115

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.7	0.40	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.7	0.55	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.7	1.3	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		6.7	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		6.7	0.73	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.7	1.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.7	0.40	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.7	0.63	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.7	0.78	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.3	0.35	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.3	0.65	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.3	0.42	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.3	0.59	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.3	0.51	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.3	0.50	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.3	0.46	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**3.8**		**3.3**	**0.50**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.3	0.44	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.3	0.39	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.3	0.37	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.3	0.57	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.3	0.39	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.3	0.69	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**1.0**	**J**	**3.3**	**0.45**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.3	0.50	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.3	0.44	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.3	0.52	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.3	1.7	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		98	25-150
13C2_6:2FTS		114	25-150
13C2_8:2FTS		85	25-150
13C2_PFDoA		99	25-150
13C2_PFTeDA		78	25-150
13C3_PFBS		97	25-150
13C3_PFHxS		93	25-150
13C3-HFPO-DA		98	25-150
13C4_PFBA		78	25-150
13C4_PFHpA		103	25-150
13C5_PFHxA		103	25-150
13C5_PFPeA		107	25-150
13C6_PFDA		102	25-150
13C7_PFUdA		94	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**
Laboratory ID: **ZE24035-028**
Description: **MW-04-06R_052224**
Matrix: **Aqueous**
Date Sampled: **05/22/2024 1115**
Project Name: **RACER PFAS**
Date Received: **05/24/2024**
Project Number: **30214036.0370**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		110	25-150
13C8_PFOS		88	25-150
13C8_PFOSA		105	10-150
13C9_PFNA		105	25-150
d5-EtFOSAA		80	25-150
d3-MeFOSAA		83	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE24035-029**

Description: **MW-04-04R_052224** Matrix: **Aqueous**

Date Sampled: **05/22/2024 1500** Project Name: **RACER PFAS**

Date Received: **05/24/2024** Project Number: **30214036.0370**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/18/2024 2140	OMNS	06/17/2024 1150	13115

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.7	0.40	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.7	0.55	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.7	1.3	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		6.7	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		6.7	0.73	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.7	1.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.7	0.40	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.7	0.63	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.7	0.78	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.3	0.35	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.3	0.65	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.3	0.42	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.3	0.59	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.3	0.51	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.3	0.49	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.3	0.46	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**1.1**	**J**	**3.3**	**0.50**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.3	0.44	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.3	0.39	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.3	0.37	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.3	0.57	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.3	0.38	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.3	0.69	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.3	0.45	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.3	0.50	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.3	0.44	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.3	0.52	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.3	1.7	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		109	25-150
13C2_6:2FTS		138	25-150
13C2_8:2FTS		92	25-150
13C2_PFDoA		86	25-150
13C2_PFTeDA		79	25-150
13C3_PFBS		108	25-150
13C3_PFHxS		110	25-150
13C3-HFPO-DA		115	25-150
13C4_PFBA		90	25-150
13C4_PFHpA		109	25-150
13C5_PFHxA		109	25-150
13C5_PFPeA		115	25-150
13C6_PFDA		98	25-150
13C7_PFUdA		96	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**
Laboratory ID: **ZE24035-029**
Description: **MW-04-04R_052224**
Matrix: **Aqueous**
Date Sampled: **05/22/2024 1500**
Project Name: **RACER PFAS**
Date Received: **05/24/2024**
Project Number: **30214036.0370**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		118	25-150
13C8_PFOS		90	25-150
13C8_PFOSA		105	10-150
13C9_PFNA		104	25-150
d5-EtFOSAA		84	25-150
d3-MeFOSAA		79	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE24035-030**

Description: **DUP-13_052224** Matrix: **Aqueous**

Date Sampled: **05/22/2024** Project Name: **RACER PFAS**

Date Received: **05/24/2024** Project Number: **30214036.0370**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/18/2024 2151	OMNS	06/17/2024 1150	13115

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.7	0.40	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.7	0.55	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.7	1.3	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		6.7	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		6.7	0.73	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.7	1.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.7	0.40	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.7	0.63	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.7	0.78	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.3	0.35	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.3	0.65	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.3	0.42	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.3	0.59	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.3	0.51	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.3	0.50	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.3	0.46	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**3.4**		**3.3**	**0.50**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.3	0.44	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.3	0.39	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.3	0.37	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.3	0.57	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.3	0.39	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.3	0.69	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.3	0.45	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.3	0.50	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.3	0.44	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.3	0.52	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.3	1.7	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		121	25-150
13C2_6:2FTS		144	25-150
13C2_8:2FTS		99	25-150
13C2_PFDoA		95	25-150
13C2_PFTeDA		81	25-150
13C3_PFBS		100	25-150
13C3_PFHxS		109	25-150
13C3-HFPO-DA		117	25-150
13C4_PFBA		81	25-150
13C4_PFHpA		115	25-150
13C5_PFHxA		118	25-150
13C5_PFPeA		119	25-150
13C6_PFDA		97	25-150
13C7_PFUdA		99	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**
Laboratory ID: **ZE24035-030**
Description: **DUP-13_052224**
Matrix: **Aqueous**
Date Sampled: **05/22/2024**
Project Name: **RACER PFAS**
Date Received: **05/24/2024**
Project Number: **30214036.0370**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		121	25-150
13C8_PFOS		96	25-150
13C8_PFOSA		97	10-150
13C9_PFNA		105	25-150
d5-EtFOSAA		83	25-150
d3-MeFOSAA		81	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE24035-031**

Description: **MW-12-13_052324** Matrix: **Aqueous**

Date Sampled: **05/23/2024 1245** Project Name: **RACER PFAS**

Date Received: **05/24/2024** Project Number: **30214036.0370**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/18/2024 2201	OMNS	06/17/2024 1150	13115

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.7	0.46	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.7	0.64	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.7	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.7	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.7	0.84	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.7	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.7	0.46	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.7	0.72	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.7	0.90	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**3.4**	**J**	**3.8**	**0.40**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.8	0.75	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.8	0.48	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.8	0.68	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.8	0.59	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.8	0.57	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.8	0.53	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**25**		**3.8**	**0.58**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.8	0.50	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.8	0.45	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**25**		**3.8**	**0.43**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**60**		**3.8**	**0.66**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.8	0.44	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**8.6**		**3.8**	**0.80**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**33**		**3.8**	**0.52**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.8	0.58	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.8	0.51	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.8	0.60	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.8	1.9	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	236	25-150
13C2_6:2FTS	N	153	25-150
13C2_8:2FTS		96	25-150
13C2_PFDoA		105	25-150
13C2_PFTeDA		103	25-150
13C3_PFBS		88	25-150
13C3_PFHxS		104	25-150
13C3-HFPO-DA		87	25-150
13C4_PFBA		60	25-150
13C4_PFHpA		94	25-150
13C5_PFHxA		98	25-150
13C5_PFPeA		88	25-150
13C6_PFDA		98	25-150
13C7_PFUdA		94	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**
Laboratory ID: **ZE24035-031**
Description: **MW-12-13_052324**
Matrix: **Aqueous**
Date Sampled: **05/23/2024 1245**
Project Name: **RACER PFAS**
Date Received: **05/24/2024**
Project Number: **30214036.0370**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		127	25-150
13C8_PFOS		98	25-150
13C8_PFOSA		107	10-150
13C9_PFNA		108	25-150
d5-EtFOSAA		95	25-150
d3-MeFOSAA		84	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE24035-032**

Description: **MW-13-36R_052324** Matrix: **Aqueous**

Date Sampled: **05/23/2024 1405** Project Name: **RACER PFAS**

Date Received: **05/24/2024** Project Number: **30214036.0370**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/18/2024 2212	OMNS	06/17/2024 1150	13115

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.6	0.46	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.6	0.63	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND	Q	7.6	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.6	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.6	0.83	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.6	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.6	0.46	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	**2991-50-6**	**PFAS by ID SOP**	**4.4**	**J**	**7.6**	**0.72**	**ng/L**	**1**
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	**2355-31-9**	**PFAS by ID SOP**	**3.0**	**J**	**7.6**	**0.89**	**ng/L**	**1**
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**2.5**	**J**	**3.8**	**0.40**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.8	0.74	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.8	0.48	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.8	0.68	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	**754-91-6**	**PFAS by ID SOP**	**2.6**	**J**	**3.8**	**0.59**	**ng/L**	**1**
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.8	0.57	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**1.7**	**J**	**3.8**	**0.53**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND	Q	3.8	0.57	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	**335-76-2**	**PFAS by ID SOP**	**20**		**3.8**	**0.50**	**ng/L**	**1**
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.8	0.45	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**27**		**3.8**	**0.43**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**32**		**3.8**	**0.66**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**11**		**3.8**	**0.44**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**56**		**3.8**	**0.79**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**28**	**Q**	**3.8**	**0.52**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.8	0.57	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.8	0.50	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	**2058-94-8**	**PFAS by ID SOP**	**0.77**	**J**	**3.8**	**0.60**	**ng/L**	**1**
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**35**		**3.8**	**1.9**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	278	25-150
13C2_6:2FTS	N	320	25-150
13C2_8:2FTS	N	286	25-150
13C2_PFDoA		112	25-150
13C2_PFTeDA		104	25-150
13C3_PFBS		81	25-150
13C3_PFHxS		101	25-150
13C3-HFPO-DA		56	25-150
13C4_PFBA	N	2.0	25-150
13C4_PFHpA		93	25-150
13C5_PFHxA		83	25-150
13C5_PFPeA	N	11	25-150
13C6_PFDA		107	25-150
13C7_PFUdA		109	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE24035-032**

Description: **MW-13-36R_052324** Matrix: **Aqueous**

Date Sampled: **05/23/2024 1405** Project Name: **RACER PFAS**

Date Received: **05/24/2024** Project Number: **30214036.0370**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		103	25-150
13C8_PFOS		98	25-150
13C8_PFOSA		100	10-150
13C9_PFNA		113	25-150
d5-EtFOSAA		125	25-150
d3-MeFOSAA		113	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE24035-033**

Description: **DUP-12_052324** Matrix: **Aqueous**

Date Sampled: **05/23/2024** Project Name: **RACER PFAS**

Date Received: **05/24/2024** Project Number: **30214036.0370**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/18/2024 2223	OMNS	06/17/2024 1150	13115
2	SOP SPE	PFAS by ID SOP	1	06/28/2024 1724	OMNS	06/27/2024 1359	13571

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.9	0.41	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.9	0.57	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND	Q	6.9	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	6.9	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	6.9	0.75	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.9	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.9	0.42	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	**2991-50-6**	**PFAS by ID SOP**	**4.5**	**J**	**6.9**	**0.64**	**ng/L**	**1**
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	**2355-31-9**	**PFAS by ID SOP**	**3.7**	**J**	**6.9**	**0.80**	**ng/L**	**1**
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**2.9**	**J**	**3.4**	**0.36**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.4	0.67	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	**375-92-8**	**PFAS by ID SOP**	**0.57**	**J**	**3.4**	**0.43**	**ng/L**	**1**
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.4	0.61	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	**754-91-6**	**PFAS by ID SOP**	**3.0**	**J**	**3.4**	**0.53**	**ng/L**	**1**
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**1.4**	**J**	**3.4**	**0.47**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND	Q	3.4	0.51	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	**335-76-2**	**PFAS by ID SOP**	**21**		**3.4**	**0.45**	**ng/L**	**1**
Perfluoro-n-dodecanoic acid (PFDoA)	**307-55-1**	**PFAS by ID SOP**	**0.42**	**J**	**3.4**	**0.40**	**ng/L**	**1**
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**28**		**3.4**	**0.38**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**33**		**3.4**	**0.59**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**11**		**3.4**	**0.40**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**56**		**3.4**	**0.71**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**26**	**Q**	**3.4**	**0.47**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	**2058-94-8**	**PFAS by ID SOP**	**0.74**	**J**	**3.4**	**0.54**	**ng/L**	**1**
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**37**		**3.4**	**1.7**	**ng/L**	**1**

Surrogate	Run 1 Q	Run 1 % Recovery	Run 1 Acceptance Limits	Run 2 Q	Run 2 % Recovery	Run 2 Acceptance Limits
13C2_4:2FTS	N	271	25-150	HN	257	25-150
13C2_6:2FTS	N	357	25-150	HN	312	25-150
13C2_8:2FTS	N	283	25-150	HN	251	25-150
13C2_PFDoA		110	25-150	H	114	25-150
13C2_PFTeDA		96	25-150	H	93	25-150
13C3_PFBS		84	25-150	H	93	25-150
13C3_PFHxS		110	25-150	H	96	25-150
13C3-HFPO-DA		59	25-150	H	55	25-150
13C4_PFBA	N	2.0	25-150	HN	2.0	25-150
13C4_PFHpA		86	25-150	H	79	25-150
13C5_PFHxA		77	25-150	H	87	25-150
13C5_PFPeA	N	11	25-150	HN	9.0	25-150
13C6_PFDA		101	25-150	H	103	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE24035-033**

Description: **DUP-12_052324** Matrix: **Aqueous**

Date Sampled: **05/23/2024** Project Name: **RACER PFAS**

Date Received: **05/24/2024** Project Number: **30214036.0370**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		115	25-150	H	122	25-150
13C8_PFOA		102	25-150	H	93	25-150
13C8_PFOS		92	25-150	H	104	25-150
13C8_PFOSA		101	10-150	H	111	10-150
13C9_PFNA		113	25-150	H	105	25-150
d5-EtFOSAA		123	25-150	H	148	25-150
d3-MeFOSAA		112	25-150	H	138	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
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E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE24035-033**

Description: **DUP-12_052324** Matrix: **Aqueous**

Date Sampled: **05/23/2024** Project Name: **RACER PFAS**

Date Received: **05/24/2024** Project Number: **30214036.0370**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/18/2024 2223	OMNS	06/17/2024 1150	13115
2	SOP SPE	PFAS by ID SOP	1	06/28/2024 1724	OMNS	06/27/2024 1359	13571

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND	H	6.7	0.40	ng/L	2
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND	H	6.7	0.55	ng/L	2
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND	HQ	6.7	1.3	ng/L	2
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	HQ	6.7	1.7	ng/L	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	HQ	6.7	0.73	ng/L	2
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND	H	6.7	1.7	ng/L	2
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND	H	6.7	0.40	ng/L	2
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	**2991-50-6**	**PFAS by ID SOP**	**4.8**	**HJ**	**6.7**	**0.62**	**ng/L**	**2**
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	**2355-31-9**	**PFAS by ID SOP**	**2.9**	**HJ**	**6.7**	**0.77**	**ng/L**	**2**
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**2.3**	**HJ**	**3.3**	**0.34**	**ng/L**	**2**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND	H	3.3	0.65	ng/L	2
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND	H	3.3	0.41	ng/L	2
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND	H	3.3	0.59	ng/L	2
Perfluoro-1-octanesulfonamide (PFOSA)	**754-91-6**	**PFAS by ID SOP**	**2.5**	**HJ**	**3.3**	**0.51**	**ng/L**	**2**
Perfluoro-1-pentanesulfonic acid (PFPeS)	**2706-91-4**	**PFAS by ID SOP**	**0.85**	**HJ**	**3.3**	**0.49**	**ng/L**	**2**
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**2.0**	**HJ**	**3.3**	**0.46**	**ng/L**	**2**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**200**	**HQ**	**3.3**	**0.50**	**ng/L**	**2**
Perfluoro-n-decanoic acid (PFDA)	**335-76-2**	**PFAS by ID SOP**	**21**	**H**	**3.3**	**0.44**	**ng/L**	**2**
Perfluoro-n-dodecanoic acid (PFDoA)	**307-55-1**	**PFAS by ID SOP**	**0.46**	**HJ**	**3.3**	**0.39**	**ng/L**	**2**
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**31**	**H**	**3.3**	**0.37**	**ng/L**	**2**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**31**	**H**	**3.3**	**0.57**	**ng/L**	**2**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**11**	**H**	**3.3**	**0.38**	**ng/L**	**2**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**53**	**H**	**3.3**	**0.69**	**ng/L**	**2**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**25**	**HQ**	**3.3**	**0.45**	**ng/L**	**2**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND	H	3.3	0.50	ng/L	2
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND	H	3.3	0.44	ng/L	2
Perfluoro-n-undecanoic acid (PFUdA)	**2058-94-8**	**PFAS by ID SOP**	**0.64**	**HJ**	**3.3**	**0.52**	**ng/L**	**2**
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**38**	**H**	**3.3**	**1.7**	**ng/L**	**2**

Surrogate	Run 1 Q	Run 1 % Recovery	Run 1 Acceptance Limits	Run 2 Q	Run 2 % Recovery	Run 2 Acceptance Limits
13C2_4:2FTS	N	271	25-150	HN	257	25-150
13C2_6:2FTS	N	357	25-150	HN	312	25-150
13C2_8:2FTS	N	283	25-150	HN	251	25-150
13C2_PFDoA		110	25-150	H	114	25-150
13C2_PFTeDA		96	25-150	H	93	25-150
13C3_PFBS		84	25-150	H	93	25-150
13C3_PFHxS		110	25-150	H	96	25-150
13C3-HFPO-DA		59	25-150	H	55	25-150
13C4_PFBA	N	2.0	25-150	HN	2.0	25-150
13C4_PFHpA		86	25-150	H	79	25-150
13C5_PFHxA		77	25-150	H	87	25-150
13C5_PFPeA	N	11	25-150	HN	9.0	25-150
13C6_PFDA		101	25-150	H	103	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE24035-033**

Description: **DUP-12_052324** Matrix: **Aqueous**

Date Sampled: **05/23/2024** Project Name: **RACER PFAS**

Date Received: **05/24/2024** Project Number: **30214036.0370**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		115	25-150	H	122	25-150
13C8_PFOA		102	25-150	H	93	25-150
13C8_PFOS		92	25-150	H	104	25-150
13C8_PFOSA		101	10-150	H	111	10-150
13C9_PFNA		113	25-150	H	105	25-150
d5-EtFOSAA		123	25-150	H	148	25-150
d3-MeFOSAA		112	25-150	H	138	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZE24035-034**

Description: **MW-14-67_052324** Matrix: **Aqueous**

Date Sampled: **05/23/2024 1515** Project Name: **RACER PFAS**

Date Received: **05/24/2024** Project Number: **30214036.0370**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	06/18/2024 2233	OMNS	06/17/2024 1150	13115

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.6	0.40	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.6	0.55	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.6	1.3	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	6.6	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		6.6	0.72	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.6	1.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.6	0.40	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.6	0.62	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.6	0.77	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**3.6**		**3.3**	**0.34**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.3	0.64	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.3	0.41	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.3	0.59	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.3	0.51	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.3	0.49	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**1.0**	**J**	**3.3**	**0.46**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**38**		**3.3**	**0.50**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	**335-76-2**	**PFAS by ID SOP**	**1.3**	**J**	**3.3**	**0.43**	**ng/L**	**1**
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.3	0.39	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**29**		**3.3**	**0.37**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**83**		**3.3**	**0.57**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**0.59**	**J**	**3.3**	**0.38**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**18**		**3.3**	**0.69**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**56**		**3.3**	**0.45**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.3	0.50	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.3	0.44	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	**2058-94-8**	**PFAS by ID SOP**	**0.62**	**J**	**3.3**	**0.52**	**ng/L**	**1**
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.3	1.7	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		147	25-150
13C2_6:2FTS	N	207	25-150
13C2_8:2FTS		106	25-150
13C2_PFDoA		90	25-150
13C2_PFTeDA		86	25-150
13C3_PFBS		72	25-150
13C3_PFHxS		92	25-150
13C3-HFPO-DA		61	25-150
13C4_PFBA		27	25-150
13C4_PFHpA		76	25-150
13C5_PFHxA		64	25-150
13C5_PFPeA		48	25-150
13C6_PFDA		93	25-150
13C7_PFUdA		88	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**
Laboratory ID: **ZE24035-034**
Description: **MW-14-67_052324**
Matrix: **Aqueous**
Date Sampled: **05/23/2024 1515**
Project Name: **RACER PFAS**
Date Received: **05/24/2024**
Project Number: **30214036.0370**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		117	25-150
13C8_PFOS		89	25-150
13C8_PFOSA		92	10-150
13C9_PFNA		103	25-150
d5-EtFOSAA		82	25-150
d3-MeFOSAA		79	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

QC Summary

PFAS by LC/MS/MS - MB

Sample ID: ZQ13114-001
Batch: 13114
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 06/17/2024 1149

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
9Cl-PF3ONS	ND		1	8.0	0.48	ng/L	06/18/2024 1331
11Cl-PF3OUdS	ND		1	8.0	0.66	ng/L	06/18/2024 1331
8:2 FTS	ND		1	8.0	1.6	ng/L	06/18/2024 1331
6:2 FTS	ND		1	8.0	2.0	ng/L	06/18/2024 1331
4:2 FTS	ND		1	8.0	0.87	ng/L	06/18/2024 1331
GenX	ND		1	8.0	2.1	ng/L	06/18/2024 1331
ADONA	ND		1	8.0	0.48	ng/L	06/18/2024 1331
EtFOSAA	ND		1	8.0	0.75	ng/L	06/18/2024 1331
MeFOSAA	ND		1	8.0	0.93	ng/L	06/18/2024 1331
PFBS	ND		1	4.0	0.41	ng/L	06/18/2024 1331
PFDS	ND		1	4.0	0.78	ng/L	06/18/2024 1331
PFHpS	ND		1	4.0	0.50	ng/L	06/18/2024 1331
PFNS	ND		1	4.0	0.71	ng/L	06/18/2024 1331
PFOSA	ND		1	4.0	0.61	ng/L	06/18/2024 1331
PFPeS	ND		1	4.0	0.59	ng/L	06/18/2024 1331
PFHxS	ND		1	4.0	0.55	ng/L	06/18/2024 1331
PFBA	ND		1	4.0	0.60	ng/L	06/18/2024 1331
PFDA	ND		1	4.0	0.52	ng/L	06/18/2024 1331
PFDoA	ND		1	4.0	0.47	ng/L	06/18/2024 1331
PFHpA	ND		1	4.0	0.45	ng/L	06/18/2024 1331
PFHxA	ND		1	4.0	0.69	ng/L	06/18/2024 1331
PFNA	ND		1	4.0	0.46	ng/L	06/18/2024 1331
PFOA	ND		1	4.0	0.83	ng/L	06/18/2024 1331
PFPeA	ND		1	4.0	0.54	ng/L	06/18/2024 1331
PFTeDA	ND		1	4.0	0.60	ng/L	06/18/2024 1331
PFTrDA	ND		1	4.0	0.53	ng/L	06/18/2024 1331
PFUdA	ND		1	4.0	0.63	ng/L	06/18/2024 1331
PFOS	ND		1	4.0	2.0	ng/L	06/18/2024 1331

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		86	25-150
13C2_6:2FTS		113	25-150
13C2_8:2FTS		100	25-150
13C2_PFDoA		96	25-150
13C2_PFTeDA		94	25-150
13C3_PFBS		92	25-150
13C3_PFHxS		94	25-150
13C3-HFPO-DA		94	25-150
13C4_PFBA		94	25-150
13C4_PFHpA		100	25-150
13C5_PFHxA		100	25-150
13C5_PFPeA		94	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: ZQ13114-001
Batch: 13114
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 06/17/2024 1149

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		92	25-150
13C7_PFUdA		93	25-150
13C8_PFOA		93	25-150
13C8_PFOS		95	25-150
13C8_PFOSA		98	10-150
13C9_PFNA		93	25-150
d5-EtFOSAA		94	25-150
d3-MeFOSAA		91	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ13114-002
Batch: 13114
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 06/17/2024 1149

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	16		1	104	50-150	06/18/2024 1342
11Cl-PF3OUdS	15	15		1	97	50-150	06/18/2024 1342
8:2 FTS	15	13		1	85	50-150	06/18/2024 1342
6:2 FTS	15	19		1	127	50-150	06/18/2024 1342
4:2 FTS	15	15		1	99	50-150	06/18/2024 1342
GenX	32	30		1	95	50-150	06/18/2024 1342
ADONA	15	16		1	108	50-150	06/18/2024 1342
EtFOSAA	16	15		1	97	50-150	06/18/2024 1342
MeFOSAA	16	15		1	94	50-150	06/18/2024 1342
PFBS	14	14		1	100	50-150	06/18/2024 1342
PFDS	15	16		1	102	50-150	06/18/2024 1342
PFHpS	15	16		1	106	50-150	06/18/2024 1342
PFNS	15	17		1	112	50-150	06/18/2024 1342
PFOSA	16	16		1	100	50-150	06/18/2024 1342
PFPeS	15	16		1	110	50-150	06/18/2024 1342
PFHxS	15	15		1	104	50-150	06/18/2024 1342
PFBA	16	16		1	99	50-150	06/18/2024 1342
PFDA	16	14		1	88	50-150	06/18/2024 1342
PFDoA	16	16		1	100	50-150	06/18/2024 1342
PFHpA	16	15		1	91	50-150	06/18/2024 1342
PFHxA	16	16		1	101	50-150	06/18/2024 1342
PFNA	16	16		1	102	50-150	06/18/2024 1342
PFOA	16	13		1	83	50-150	06/18/2024 1342
PFPeA	16	16		1	99	50-150	06/18/2024 1342
PFTeDA	16	15		1	95	50-150	06/18/2024 1342
PFTrDA	16	14		1	86	50-150	06/18/2024 1342
PFUdA	16	17		1	106	50-150	06/18/2024 1342
PFOS	15	15		1	101	50-150	06/18/2024 1342

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		98	25-150
13C2_6:2FTS		103	25-150
13C2_8:2FTS		107	25-150
13C2_PFDoA		85	25-150
13C2_PFTeDA		89	25-150
13C3_PFBS		87	25-150
13C3_PFHxS		88	25-150
13C3-HFPO-DA		97	25-150
13C4_PFBA		89	25-150
13C4_PFHpA		96	25-150
13C5_PFHxA		97	25-150
13C5_PFPeA		94	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ13114-002
Batch: 13114
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 06/17/2024 1149

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		98	25-150
13C7_PFUdA		91	25-150
13C8_PFOA		103	25-150
13C8_PFOS		90	25-150
13C8_PFOSA		97	10-150
13C9_PFNA		90	25-150
d5-EtFOSAA		92	25-150
d3-MeFOSAA		96	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID: ZE24035-003MS
Batch: 13114
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 06/17/2024 1149

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	ND	13	13		1	101	50-150	06/18/2024 1507
11Cl-PF3OUdS	ND	13	12		1	96	50-150	06/18/2024 1507
8:2 FTS	ND	13	13		1	97	50-150	06/18/2024 1507
6:2 FTS	ND	13	15		1	114	50-150	06/18/2024 1507
4:2 FTS	ND	13	12		1	92	50-150	06/18/2024 1507
GenX	ND	27	26		1	96	50-150	06/18/2024 1507
ADONA	ND	13	15		1	114	50-150	06/18/2024 1507
EtFOSAA	ND	14	13		1	99	50-150	06/18/2024 1507
MeFOSAA	ND	14	15		1	111	50-150	06/18/2024 1507
PFBS	4.5	12	15		1	88	50-150	06/18/2024 1507
PFDS	ND	13	14		1	103	50-150	06/18/2024 1507
PFHpS	ND	13	14		1	110	50-150	06/18/2024 1507
PFNS	ND	13	14		1	105	50-150	06/18/2024 1507
PFOSA	ND	14	12		1	91	50-150	06/18/2024 1507
PFPeS	ND	13	14		1	108	50-150	06/18/2024 1507
PFHxS	2.0	12	15		1	105	50-150	06/18/2024 1507
PFBA	4.6	14	19		1	103	50-150	06/18/2024 1507
PFDA	ND	14	15		1	109	50-150	06/18/2024 1507
PFDoA	ND	14	15		1	107	50-150	06/18/2024 1507
PFHpA	1.2	14	14		1	97	50-150	06/18/2024 1507
PFHxA	ND	14	15		1	109	50-150	06/18/2024 1507
PFNA	ND	14	14		1	106	50-150	06/18/2024 1507
PFOA	2.9	14	17		1	106	50-150	06/18/2024 1507
PFPeA	3.0	14	17		1	102	50-150	06/18/2024 1507
PFTeDA	ND	14	14		1	101	50-150	06/18/2024 1507
PFTrDA	ND	14	13		1	96	50-150	06/18/2024 1507
PFUdA	ND	14	14		1	104	50-150	06/18/2024 1507
PFOS	ND	13	14		1	110	50-150	06/18/2024 1507

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		150	25-150
13C2_6:2FTS		119	25-150
13C2_8:2FTS		113	25-150
13C2_PFDoA		89	25-150
13C2_PFTeDA		100	25-150
13C3_PFBS		96	25-150
13C3_PFHxS		98	25-150
13C3-HFPO-DA		108	25-150
13C4_PFBA		79	25-150
13C4_PFHpA		105	25-150
13C5_PFHxA		102	25-150
13C5_PFPeA		105	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID: ZE24035-003MS
Batch: 13114
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 06/17/2024 1149

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		99	25-150
13C7_PFUdA		95	25-150
13C8_PFOA		104	25-150
13C8_PFOS		96	25-150
13C8_PFOSA		103	10-150
13C9_PFNA		96	25-150
d5-EtFOSAA		90	25-150
d3-MeFOSAA		96	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MSD

Sample ID: ZE24035-003MD
Batch: 13114
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 06/17/2024 1149

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
9Cl-PF3ONS	ND	12	11		1	92	11	50-150	30	06/18/2024 1517
11Cl-PF3OUdS	ND	13	12		1	94	3.2	50-150	30	06/18/2024 1517
8:2 FTS	ND	13	11		1	88	11	50-150	30	06/18/2024 1517
6:2 FTS	ND	13	12		1	97	18	50-150	30	06/18/2024 1517
4:2 FTS	ND	13	14		1	114	20	50-150	30	06/18/2024 1517
GenX	ND	27	25		1	93	4.6	50-150	30	06/18/2024 1517
ADONA	ND	13	14		1	108	6.9	50-150	30	06/18/2024 1517
EtFOSAA	ND	13	12		1	90	10	50-150	30	06/18/2024 1517
MeFOSAA	ND	13	13		1	98	14	50-150	30	06/18/2024 1517
PFBS	4.5	12	17		1	103	10	50-150	30	06/18/2024 1517
PFDS	ND	13	12		1	94	11	50-150	30	06/18/2024 1517
PFHpS	ND	13	14		1	113	1.1	50-150	30	06/18/2024 1517
PFNS	ND	13	13		1	101	6.2	50-150	30	06/18/2024 1517
PFOSA	ND	13	13		1	96	4.0	50-150	30	06/18/2024 1517
PFPeS	ND	13	15		1	116	5.1	50-150	30	06/18/2024 1517
PFHxS	2.0	12	15		1	108	1.5	50-150	30	06/18/2024 1517
PFBA	4.6	13	18		1	104	0.52	50-150	30	06/18/2024 1517
PFDA	ND	13	13		1	93	17	50-150	30	06/18/2024 1517
PFDoA	ND	13	13		1	95	13	50-150	30	06/18/2024 1517
PFHpA	1.2	13	14		1	92	6.0	50-150	30	06/18/2024 1517
PFHxA	ND	13	14		1	104	7.0	50-150	30	06/18/2024 1517
PFNA	ND	13	14		1	101	6.2	50-150	30	06/18/2024 1517
PFOA	2.9	13	16		1	96	9.8	50-150	30	06/18/2024 1517
PFPeA	3.0	13	16		1	97	5.2	50-150	30	06/18/2024 1517
PFTeDA	ND	13	13		1	94	8.4	50-150	30	06/18/2024 1517
PFTrDA	ND	13	11		1	81	18	50-150	30	06/18/2024 1517
PFUdA	ND	13	13		1	100	5.7	50-150	30	06/18/2024 1517
PFOS	ND	12	13		1	104	7.9	50-150	30	06/18/2024 1517

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		135	25-150
13C2_6:2FTS		127	25-150
13C2_8:2FTS		93	25-150
13C2_PFDoA		88	25-150
13C2_PFTeDA		98	25-150
13C3_PFBS		89	25-150
13C3_PFHxS		92	25-150
13C3-HFPO-DA		99	25-150
13C4_PFBA		76	25-150
13C4_PFHpA		100	25-150
13C5_PFHxA		111	25-150
13C5_PFPeA		103	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MSD

Sample ID: ZE24035-003MD
Batch: 13114
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 06/17/2024 1149

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		91	25-150
13C7_PFUdA		94	25-150
13C8_PFOA		105	25-150
13C8_PFOS		94	25-150
13C8_PFOSA		105	10-150
13C9_PFNA		98	25-150
d5-EtFOSAA		90	25-150
d3-MeFOSAA		94	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: ZQ13115-001
Batch: 13115
Analytical Method: PFAS by ID SOP
Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 06/17/2024 1150

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
9Cl-PF3ONS	ND		1	8.0	0.48	ng/L	06/18/2024 1829
11Cl-PF3OUdS	ND		1	8.0	0.66	ng/L	06/18/2024 1829
8:2 FTS	ND		1	8.0	1.6	ng/L	06/18/2024 1829
6:2 FTS	ND		1	8.0	2.0	ng/L	06/18/2024 1829
4:2 FTS	ND		1	8.0	0.87	ng/L	06/18/2024 1829
GenX	ND		1	8.0	2.1	ng/L	06/18/2024 1829
ADONA	ND		1	8.0	0.48	ng/L	06/18/2024 1829
EtFOSAA	ND		1	8.0	0.75	ng/L	06/18/2024 1829
MeFOSAA	ND		1	8.0	0.93	ng/L	06/18/2024 1829
PFBS	ND		1	4.0	0.41	ng/L	06/18/2024 1829
PFDS	ND		1	4.0	0.78	ng/L	06/18/2024 1829
PFHpS	ND		1	4.0	0.50	ng/L	06/18/2024 1829
PFNS	ND		1	4.0	0.71	ng/L	06/18/2024 1829
PFOSA	ND		1	4.0	0.61	ng/L	06/18/2024 1829
PFPeS	ND		1	4.0	0.59	ng/L	06/18/2024 1829
PFHxS	ND		1	4.0	0.55	ng/L	06/18/2024 1829
PFBA	ND		1	4.0	0.60	ng/L	06/18/2024 1829
PFDA	ND		1	4.0	0.52	ng/L	06/18/2024 1829
PFDoA	ND		1	4.0	0.47	ng/L	06/18/2024 1829
PFHpA	ND		1	4.0	0.45	ng/L	06/18/2024 1829
PFHxA	ND		1	4.0	0.69	ng/L	06/18/2024 1829
PFNA	ND		1	4.0	0.46	ng/L	06/18/2024 1829
PFOA	ND		1	4.0	0.83	ng/L	06/18/2024 1829
PFPeA	ND		1	4.0	0.54	ng/L	06/18/2024 1829
PFTeDA	ND		1	4.0	0.60	ng/L	06/18/2024 1829
PFTrDA	ND		1	4.0	0.53	ng/L	06/18/2024 1829
PFUdA	ND		1	4.0	0.63	ng/L	06/18/2024 1829
PFOS	ND		1	4.0	2.0	ng/L	06/18/2024 1829

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		103	25-150
13C2_6:2FTS		129	25-150
13C2_8:2FTS		96	25-150
13C2_PFDoA		109	25-150
13C2_PFTeDA		105	25-150
13C3_PFBS		103	25-150
13C3_PFHxS		106	25-150
13C3-HFPO-DA		110	25-150
13C4_PFBA		108	25-150
13C4_PFHpA		108	25-150
13C5_PFHxA		102	25-150
13C5_PFPeA		109	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: ZQ13115-001
Batch: 13115
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 06/17/2024 1150

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		100	25-150
13C7_PFUdA		103	25-150
13C8_PFOA		117	25-150
13C8_PFOS		98	25-150
13C8_PFOSA		107	10-150
13C9_PFNA		108	25-150
d5-EtFOSAA		90	25-150
d3-MeFOSAA		90	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ13115-002
Batch: 13115
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 06/17/2024 1150

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	14		1	97	50-150	06/18/2024 1839
11Cl-PF3OUdS	15	14		1	94	50-150	06/18/2024 1839
8:2 FTS	15	15		1	98	50-150	06/18/2024 1839
6:2 FTS	15	13		1	88	50-150	06/18/2024 1839
4:2 FTS	15	16		1	105	50-150	06/18/2024 1839
GenX	32	31		1	98	50-150	06/18/2024 1839
ADONA	15	15		1	100	50-150	06/18/2024 1839
EtFOSAA	16	15		1	96	50-150	06/18/2024 1839
MeFOSAA	16	16		1	97	50-150	06/18/2024 1839
PFBS	14	15		1	106	50-150	06/18/2024 1839
PFDS	15	15		1	97	50-150	06/18/2024 1839
PFHpS	15	16		1	107	50-150	06/18/2024 1839
PFNS	15	15		1	95	50-150	06/18/2024 1839
PFOSA	16	15		1	95	50-150	06/18/2024 1839
PFPeS	15	16		1	107	50-150	06/18/2024 1839
PFHxS	15	15		1	105	50-150	06/18/2024 1839
PFBA	16	16		1	99	50-150	06/18/2024 1839
PFDA	16	15		1	93	50-150	06/18/2024 1839
PFDoA	16	13		1	84	50-150	06/18/2024 1839
PFHpA	16	15		1	93	50-150	06/18/2024 1839
PFHxA	16	17		1	104	50-150	06/18/2024 1839
PFNA	16	16		1	100	50-150	06/18/2024 1839
PFOA	16	16		1	100	50-150	06/18/2024 1839
PFPeA	16	15		1	94	50-150	06/18/2024 1839
PFTeDA	16	15		1	95	50-150	06/18/2024 1839
PFTrDA	16	16		1	99	50-150	06/18/2024 1839
PFUdA	16	16		1	100	50-150	06/18/2024 1839
PFOS	15	14		1	97	50-150	06/18/2024 1839

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		87	25-150
13C2_6:2FTS		128	25-150
13C2_8:2FTS		102	25-150
13C2_PFDoA		106	25-150
13C2_PFTeDA		103	25-150
13C3_PFBS		99	25-150
13C3_PFHxS		100	25-150
13C3-HFPO-DA		103	25-150
13C4_PFBA		104	25-150
13C4_PFHpA		106	25-150
13C5_PFHxA		99	25-150
13C5_PFPeA		113	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ13115-002
Batch: 13115
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 06/17/2024 1150

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		105	25-150
13C7_PFUdA		105	25-150
13C8_PFOA		124	25-150
13C8_PFOS		98	25-150
13C8_PFOSA		103	10-150
13C9_PFNA		101	25-150
d5-EtFOSAA		91	25-150
d3-MeFOSAA		89	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID: ZE24035-026MS
Batch: 13115
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 06/17/2024 1150

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	ND	15	14		1	94	50-150	06/18/2024 2058
11Cl-PF3OUdS	ND	15	15		1	99	50-150	06/18/2024 2058
8:2 FTS	ND	15	12		1	79	50-150	06/18/2024 2058
6:2 FTS	ND	15	15		1	102	50-150	06/18/2024 2058
4:2 FTS	ND	15	16		1	105	50-150	06/18/2024 2058
GenX	ND	32	30		1	94	50-150	06/18/2024 2058
ADONA	ND	15	16		1	106	50-150	06/18/2024 2058
EtFOSAA	ND	16	15		1	96	50-150	06/18/2024 2058
MeFOSAA	ND	16	14		1	90	50-150	06/18/2024 2058
PFBS	ND	14	15		1	104	50-150	06/18/2024 2058
PFDS	ND	15	13		1	83	50-150	06/18/2024 2058
PFHpS	ND	15	14		1	91	50-150	06/18/2024 2058
PFNS	ND	15	14		1	93	50-150	06/18/2024 2058
PFOSA	ND	16	17		1	104	50-150	06/18/2024 2058
PFPeS	ND	15	16		1	109	50-150	06/18/2024 2058
PFHxS	ND	14	14		1	100	50-150	06/18/2024 2058
PFBA	ND	16	17		1	108	50-150	06/18/2024 2058
PFDA	ND	16	18		1	116	50-150	06/18/2024 2058
PFDoA	ND	16	18		1	114	50-150	06/18/2024 2058
PFHpA	ND	16	14		1	91	50-150	06/18/2024 2058
PFHxA	ND	16	17		1	106	50-150	06/18/2024 2058
PFNA	ND	16	15		1	95	50-150	06/18/2024 2058
PFOA	ND	16	16		1	103	50-150	06/18/2024 2058
PFPeA	ND	16	16		1	100	50-150	06/18/2024 2058
PFTeDA	ND	16	14		1	91	50-150	06/18/2024 2058
PFTrDA	ND	16	17		1	107	50-150	06/18/2024 2058
PFUdA	ND	16	16		1	100	50-150	06/18/2024 2058
PFOS	ND	15	16		1	108	50-150	06/18/2024 2058

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		123	25-150
13C2_6:2FTS		124	25-150
13C2_8:2FTS		90	25-150
13C2_PFDoA		92	25-150
13C2_PFTeDA		104	25-150
13C3_PFBS		93	25-150
13C3_PFHxS		100	25-150
13C3-HFPO-DA		102	25-150
13C4_PFBA		63	25-150
13C4_PFHpA		111	25-150
13C5_PFHxA		107	25-150
13C5_PFPeA		104	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID: ZE24035-026MS
Batch: 13115
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 06/17/2024 1150

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		87	25-150
13C7_PFUdA		101	25-150
13C8_PFOA		107	25-150
13C8_PFOS		95	25-150
13C8_PFOSA		98	10-150
13C9_PFNA		101	25-150
d5-EtFOSAA		84	25-150
d3-MeFOSAA		87	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MSD

Sample ID: ZE24035-026MD
Batch: 13115
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 06/17/2024 1150

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
9Cl-PF3ONS	ND	15	13		1	91	4.5	50-150	30	06/18/2024 2108
11Cl-PF3OUdS	ND	15	13		1	88	14	50-150	30	06/18/2024 2108
8:2 FTS	ND	15	14		1	96	18	50-150	30	06/18/2024 2108
6:2 FTS	ND	15	13		1	86	19	50-150	30	06/18/2024 2108
4:2 FTS	ND	15	14		1	98	8.2	50-150	30	06/18/2024 2108
GenX	ND	31	28		1	90	6.4	50-150	30	06/18/2024 2108
ADONA	ND	15	16		1	109	1.5	50-150	30	06/18/2024 2108
EtFOSAA	ND	16	15		1	99	1.3	50-150	30	06/18/2024 2108
MeFOSAA	ND	16	16		1	99	7.9	50-150	30	06/18/2024 2108
PFBS	ND	14	14		1	102	4.0	50-150	30	06/18/2024 2108
PFDS	ND	15	13		1	88	3.5	50-150	30	06/18/2024 2108
PFHpS	ND	15	17		1	116	22	50-150	30	06/18/2024 2108
PFNS	ND	15	13		1	85	11	50-150	30	06/18/2024 2108
PFOSA	ND	16	16		1	105	0.44	50-150	30	06/18/2024 2108
PFPeS	ND	15	16		1	111	0.058	50-150	30	06/18/2024 2108
PFHxS	ND	14	14		1	99	2.6	50-150	30	06/18/2024 2108
PFBA	ND	16	17		1	109	0.70	50-150	30	06/18/2024 2108
PFDA	ND	16	14		1	92	25	50-150	30	06/18/2024 2108
PFDoA	ND	16	14		1	92	23	50-150	30	06/18/2024 2108
PFHpA	ND	16	16		1	101	8.1	50-150	30	06/18/2024 2108
PFHxA	ND	16	15		1	96	12	50-150	30	06/18/2024 2108
PFNA	ND	16	16		1	100	4.0	50-150	30	06/18/2024 2108
PFOA	ND	16	15		1	95	10	50-150	30	06/18/2024 2108
PFPeA	ND	16	15		1	97	4.2	50-150	30	06/18/2024 2108
PFTeDA	ND	16	14		1	92	0.48	50-150	30	06/18/2024 2108
PFTrDA	ND	16	15		1	97	11	50-150	30	06/18/2024 2108
PFUdA	ND	16	18		1	112	9.3	50-150	30	06/18/2024 2108
PFOS	ND	15	13		1	89	21	50-150	30	06/18/2024 2108

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		121	25-150
13C2_6:2FTS		124	25-150
13C2_8:2FTS		90	25-150
13C2_PFDoA		100	25-150
13C2_PFTeDA		98	25-150
13C3_PFBS		90	25-150
13C3_PFHxS		99	25-150
13C3-HFPO-DA		96	25-150
13C4_PFBA		62	25-150
13C4_PFHpA		99	25-150
13C5_PFHxA		106	25-150
13C5_PFPeA		102	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MSD

Sample ID: ZE24035-026MD
Batch: 13115
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 06/17/2024 1150

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		99	25-150
13C7_PFUdA		88	25-150
13C8_PFOA		117	25-150
13C8_PFOS		99	25-150
13C8_PFOSA		95	10-150
13C9_PFNA		98	25-150
d5-EtFOSAA		82	25-150
d3-MeFOSAA		85	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: ZQ13571-001
Batch: 13571
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 06/27/2024 1359

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
9Cl-PF3ONS	ND		1	8.0	0.48	ng/L	06/28/2024 1652
11Cl-PF3OUdS	ND		1	8.0	0.66	ng/L	06/28/2024 1652
8:2 FTS	ND		1	8.0	1.6	ng/L	06/28/2024 1652
6:2 FTS	ND		1	8.0	2.0	ng/L	06/28/2024 1652
4:2 FTS	ND		1	8.0	0.87	ng/L	06/28/2024 1652
GenX	ND		1	8.0	2.1	ng/L	06/28/2024 1652
ADONA	ND		1	8.0	0.48	ng/L	06/28/2024 1652
EtFOSAA	ND		1	8.0	0.75	ng/L	06/28/2024 1652
MeFOSAA	ND		1	8.0	0.93	ng/L	06/28/2024 1652
PFBS	ND		1	4.0	0.41	ng/L	06/28/2024 1652
PFDS	ND		1	4.0	0.78	ng/L	06/28/2024 1652
PFHpS	ND		1	4.0	0.50	ng/L	06/28/2024 1652
PFNS	ND		1	4.0	0.71	ng/L	06/28/2024 1652
PFOSA	ND		1	4.0	0.61	ng/L	06/28/2024 1652
PFPeS	ND		1	4.0	0.59	ng/L	06/28/2024 1652
PFHxS	ND		1	4.0	0.55	ng/L	06/28/2024 1652
PFBA	ND		1	4.0	0.60	ng/L	06/28/2024 1652
PFDA	ND		1	4.0	0.52	ng/L	06/28/2024 1652
PFDoA	ND		1	4.0	0.47	ng/L	06/28/2024 1652
PFHpA	ND		1	4.0	0.45	ng/L	06/28/2024 1652
PFHxA	ND		1	4.0	0.69	ng/L	06/28/2024 1652
PFNA	ND		1	4.0	0.46	ng/L	06/28/2024 1652
PFOA	ND		1	4.0	0.83	ng/L	06/28/2024 1652
PFPeA	ND		1	4.0	0.54	ng/L	06/28/2024 1652
PFTeDA	ND		1	4.0	0.60	ng/L	06/28/2024 1652
PFTrDA	ND		1	4.0	0.53	ng/L	06/28/2024 1652
PFUdA	ND		1	4.0	0.63	ng/L	06/28/2024 1652
PFOS	ND		1	4.0	2.0	ng/L	06/28/2024 1652

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		95	25-150
13C2_6:2FTS		136	25-150
13C2_8:2FTS		98	25-150
13C2_PFDoA		124	25-150
13C2_PFTeDA		100	25-150
13C3_PFBS		101	25-150
13C3_PFHxS		95	25-150
13C3-HFPO-DA		88	25-150
13C4_PFBA		106	25-150
13C4_PFHpA		101	25-150
13C5_PFHxA		108	25-150
13C5_PFPeA		91	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: ZQ13571-001
Batch: 13571
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 06/27/2024 1359

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		93	25-150
13C7_PFUdA		110	25-150
13C8_PFOA		92	25-150
13C8_PFOS		105	25-150
13C8_PFOSA		105	10-150
13C9_PFNA		94	25-150
d5-EtFOSAA		139	25-150
d3-MeFOSAA		113	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ13571-002
Batch: 13571
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 06/27/2024 1359

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	15		1	99	50-150	06/28/2024 1703
11Cl-PF3OUdS	15	13		1	87	50-150	06/28/2024 1703
8:2 FTS	15	17		1	109	50-150	06/28/2024 1703
6:2 FTS	15	18		1	121	50-150	06/28/2024 1703
4:2 FTS	15	14		1	95	50-150	06/28/2024 1703
GenX	32	35		1	109	50-150	06/28/2024 1703
ADONA	15	14		1	91	50-150	06/28/2024 1703
EtFOSAA	16	15		1	94	50-150	06/28/2024 1703
MeFOSAA	16	18		1	112	50-150	06/28/2024 1703
PFBS	14	14		1	99	50-150	06/28/2024 1703
PFDS	15	14		1	94	50-150	06/28/2024 1703
PFHpS	15	13		1	88	50-150	06/28/2024 1703
PFNS	15	17		1	109	50-150	06/28/2024 1703
PFOSA	16	15		1	96	50-150	06/28/2024 1703
PFPeS	15	16		1	104	50-150	06/28/2024 1703
PFHxS	15	13		1	87	50-150	06/28/2024 1703
PFBA	16	16		1	98	50-150	06/28/2024 1703
PFDA	16	17		1	106	50-150	06/28/2024 1703
PFDoA	16	16		1	100	50-150	06/28/2024 1703
PFHpA	16	17		1	108	50-150	06/28/2024 1703
PFHxA	16	15		1	91	50-150	06/28/2024 1703
PFNA	16	16		1	98	50-150	06/28/2024 1703
PFOA	16	16		1	99	50-150	06/28/2024 1703
PFPeA	16	16		1	101	50-150	06/28/2024 1703
PFTeDA	16	16		1	100	50-150	06/28/2024 1703
PFTrDA	16	13		1	80	50-150	06/28/2024 1703
PFUdA	16	14		1	89	50-150	06/28/2024 1703
PFOS	15	14		1	96	50-150	06/28/2024 1703

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		105	25-150
13C2_6:2FTS		141	25-150
13C2_8:2FTS		76	25-150
13C2_PFDoA		86	25-150
13C2_PFTeDA		72	25-150
13C3_PFBS		101	25-150
13C3_PFHxS		107	25-150
13C3-HFPO-DA		85	25-150
13C4_PFBA		101	25-150
13C4_PFHpA		91	25-150
13C5_PFHxA		113	25-150
13C5_PFPeA		95	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ13571-002
Batch: 13571
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 06/27/2024 1359

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		89	25-150
13C7_PFUdA		104	25-150
13C8_PFOA		96	25-150
13C8_PFOS		105	25-150
13C8_PFOSA		103	10-150
13C9_PFNA		93	25-150
d5-EtFOSAA		100	25-150
d3-MeFOSAA		90	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Chain of Custody
and
Miscellaneous Documents

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106 Vantage Point Drive • West Columbia, SC 29172
Telephone No. 803-791-9700 Fax No. 803-791-9111
www.pacelabs.com

Number 153104

Client: ARCADIS	Report to Contact: Kamryn Hunter Arcadis.com	Telephone No. / E-mail: 947.977.5215	Quote No.
Address: 28550 Cabot Dr Suite 500	Sampler's Signature: X	Analysis (Attach list if more space is needed)	Page 1 of 4
City: Novi / State: MI / Zip Code: 48377	Printed Name: Billy J. Gibson		
Project Name: RACER TRUST (LANSING)			

Project No.	P.O. No.		Grab/Composite	Matrix			No of Containers by Preservative Type								
Sample ID / Description (Containers for each sample may be combined on one line.)	Collection Date(s)	Collection Time (Military)		Aqueous	Solid	Non-Aqueous	Unpres.	H2SO4	HNO3	HCl	NaOH	2SO3 4V	FAN Preserv	PFAS Methods 537.1 Modified, 533 (Dual Cartridge)	Remarks / Cooler I.D.
MW-22-150_052324	5/23/24	1300	G	X			X							X	
MW-22-151_052324	5/23/24	1405	G	X			X							X	
MW-22-152_052324	5/23/24	1500	G	X			X							X	MS/MSD
MW-12-10R_052224	5/22/24	1035	G	X			X							X	
MW-12-11_052224	5/22/24	1200	G	X			X							X	
MW-12-12_052224	5/22/24	1335	G	X			X							X	
MW-14-70_052224	5/22/24	1455	G	X			X							X	
MW-20-131_052224	5/22/24	1615	G	X			X							X	
MW-20-132_052324	5/23/24	1025	G	X			X							X	
~~PB~~-5807_052324	5/23/24	1555	G	X			X							X	

ZE24035
KES2

Turn Around Time Required (Prior lab approval required for expedited TAT.): [X] Standard [ ] Rush (Specify)

Sample Disposal: [ ] Return to Client [X] Disposal by Lab

Possible Hazard Identification: [X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison [ ] Unknown

QC Requirements (Specify)

1. Relinquished by: Austin Westhuis/Arcadis	Date: 5/23/24	Time:	1. Received by: FedEx	Date: 5/23/24	Time:
2. Relinquished by	Date:	Time:	2. Received by	Date:	Time:
3. Relinquished by	Date:	Time:	3. Received by	Date:	Time:
4. Relinquished by: FEDEX	Date: 5/24/24	Time: 1010	4. Laboratory received by	Date: 5/24/24	Time: 1010

Note: All samples are retained for four weeks from receipt unless other arrangements are made.

LAB USE ONLY
Received on ice (Circle): (Yes) No Ice Pack
Receipt Temp: 4.4,2.1 °C
Temp Blank: [ ] Y [X] N

DISTRIBUTION: WHITE & YELLOW-Return to laboratory with Sample(s), PINK-Field/Client Copy

Document Number: ME009N2-01

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www.pacelabs.com

Number 153105

Client: ARCADIS	Report to Contact: KATHYN.HUNT@ARCADIS.COM	Telephone No. / E-mail: 947.977.5215	Quote No.
Address: 28550 CABOT DR. SUITE 500	Sampler's Signature: X	Analysis (Attach list if more space is needed)	Page 2 of 4
City: NOVI	State: MI	Zip Code: 48377	Printed Name: BILLY J. COBURN		ZE24035
Project Name: RACER TRUST (LANSING)			KES2
Project No.: 30214036.0370A	P.O. No.		Remarks / Cooler I.D.

Sample ID / Description (Containers for each sample may be combined on one line.)	Collection Date(s)	Collection Time (Military)	Sediment C=Composite	Matrix: Aqueous	Solid	Non-Aqueous	No of Containers by Preservative Type: Unpres	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Other (Specify)	DISSOLVED METALS 6010/6020 - FILTERED IN FIELD
MW-22-143_052224	5/22/24	1325	G	X			X							X
MW-22-158_052224	5/22/24	1435	G	X			X							X
MW-22-144_052224	5/22/24	1545	G	X			X							X
MW-22-145_052224	5/22/24	1630	G	X			X							X
MW-22-160_052224	5/22/24	1745	G	X			X							X
MW-22-146_052224	5/22/24	1845	G	X			X							X
DUP-14_052224	5/22/24	—	G	X			X							X
MW-22-148_052324	5/23/24	935	G	X			X							X
MW-22-147_052324	5/23/24	1020	G	X			X							X
MW-22-149_052324	5/23/24	1135	G	X			X							X

Turn Around Time Required (Prior lab approval required for expedited TAT.): ☒ Standard ☐ Rush (Specify)

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab

Possible Hazard Identification: ☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison ☐ Unknown

QC Requirements (Specify)

1. Relinquished by: Austin Westhuis/Arcadis	Date: 5/23/24	Time	1. Received by: Fed Ex	Date: 5/23/24	Time
2. Relinquished by	Date	Time	2. Received by	Date	Time
3. Relinquished by	Date	Time	3. Received by	Date	Time
4. Relinquished by: FEDEX	Date: 5/24/24	Time: 1010	4. Laboratory received by	Date: 5/24/24	Time: 1010

Note: All samples are retained for four weeks from receipt unless other arrangements are made.

LAB USE ONLY
Received on ice (Circle): (Yes) No Ice Pack
Receipt Temp: 4.4/2.1 °C
Temp Blank: ☐ Y ☒ N

DISTRIBUTION: WHITE & YELLOW-Return to laboratory with Sample(s); PINK-Field/Client Copy

Document Number: ME003N2.01

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Number 153107

Client: Arcadis	Report to Contact: Tiffany Linder, Kaitlyn Hunt	Telephone No. / E-mail: (248) 802-4013 / kaitlyn.hunt@arcadis.com	Quote No.
Address: 28550 Cabot Drive, Suite 500	Sampler's Signature: X	Analysis (Attach list if more space is needed)	Page 3 of 4
City: Novi / State: MI / Zip Code: 48377	Printed Name: Jackie Schulte		
Project Name: RACER Lansing GWS			
Project No.: 30214036.0370A	P.O. No.		

ZE24035
KES2

Sample ID / Description (Containers for each sample may be combined on one line.)	Collection Date(s)	Collection Time (Military)	Composite/Grab	Matrix: Aqueous	Matrix: Solid	Matrix: Non-aqueous	No. of Containers by Preservative Type: Unpres	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Other	Analysis: PFAS (Method 537.1) EGLE 21 Compounds	Remarks / Cooler I.D.
MW-21-133_052224	5/22/24	1025	G	X			2							2	
MW-21-134_052224	5/22/24	1150	G	X			2							2	
MW-21-135_052224	5/22/24	1345	G	X			2							2	
MW-21-136_052224	5/22/24	1530	G	X			2							2	
MW-21-137_052324	5/23/24	0935	G	X			2							2	
MW-21-138_052324	5/23/24	1055	G	X			6							6	MS/MSD
MW-04-05(6)_052324	5/23/24	1305	G	X			2							2	
MW-04-06R_052224	5/22/24	1115	G	X			2							2	
MW-04-04R_052224	5/22/24	1500	G	X			2							2	
DUP-18_052224	5/22/24	—	G	X			2							2	

Turn Around Time Required (Prior lab approval required for expedited TAT.): ☒ Standard ☐ Rush (Specify)

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab

Possible Hazard Identification: ☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison ☐ Unknown

QC Requirements (Specify)

	Relinquished by	Date	Time	Received by	Date	Time
1	Alan Walsh / AustinWesthuis / Arcadis	5/23/24		1. FedEx	5/23/24	
2				2.		
3				3.		
4	FEDEX	5/24/24	1010	4. Laboratory received by	5/24/24	1010

Note: All samples are retained for four weeks from receipt unless other arrangements are made.

LAB USE ONLY — Received on ice (Circle) Yes / No Ice Pack — Receipt Temp. 4.4, 2.1 °C — Temp Blank: ☐ Y ☒ N

DISTRIBUTION: WHITE & YELLOW-Return to laboratory with Sample(s); PINK-Field/Client Copy

Document Number: ME00GN2-01

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www.pacelabs.com

Number

Client	Report to Contact	Telephone No. / E-mail	Quote No.
Arcadis	Tiffany Linder, Kaitlyn Hunt	(248)809-4013/ kaitlyn.hunt@arcadis.com	

Address	Sample's Signature	Analysis (Attach list if more space is needed)	Page 4 of 4
28550 Cabot Drive, Suite 500	x [signature]		

City	State	Zip Code	Printed Name
Novi	MI	48377	Austin Westhuis

Project Name: RACER Lansing GWS

Project Number: ~~30171885.0370A~~ 30214036.0370A

P.O. No.: ~~WS45600161~~ WS45600161.63 ~~WS45600161676~~

ZE24035

KES2

Sample ID / Description (Containers for each sample may be combined on one line)	Collection Date(s)	Collection Time (military)	G=Grab C=Composite	Matrix: Aqueous	Matrix: Solid	Matrix: Non-Aqueous	No of Containers by Preservative Type: Unpres.	H2SO4	HNO3	HCl	NaOH	5035 Kit	Field Filtered	PFAS (Method 537M, EGLE 28 compounds)	Remarks / Cooler I.D.
MW-12-13_052324	5/23/24	1245	G	X			2							2	
MW-13-36R_052324	5/23/24	1405	G	X			2							2	
DUP-12_052324	5/22/24	—	G	X			2							2	
MW-14-67_052324	5/23/24	1515	G	X			2							2	

Turn Around Time Required (Prior lab approval required for expedited TAT): ☒ Standard ☐ Rush (Please Specify)

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab

Possible Hazard Identification (List any known hazards in the remarks): ☒ Non-Hazardous ☐ Flammable ☐ Skin Irritant ☐ SDS provided ☐ Unknown

QC Requirements

	Date	Time		Date	Time
1. Relinquished by: Amy LeVan / Austin Westhuis / Arcadis	5/23/24		1. Received by: FedEx	5/23/24	
2. Relinquished by:			2. Received by:		
3. Relinquished by:			3. Received by:		
4. Relinquished by: FEDEX	5/24/24	1010	4. Laboratory Received by:	5/24/24	1010

Note: All samples are retained for four weeks from receipt unless other arrangements are made

LAB USE ONLY
Received on Ice (Check) ☒ Y ☐ N ☐ Ice Pack

Receipt Temp.: 4.4, 2.1 °C

Temp. Blank: ☐ Y / ☒ N

PACE ANALYTICAL SERVICES, LLC

DC#_Title: ENV-FRM-WCOL-0286 v02_Samples Receipt Checklist (SRC)
Effective Date: 8/2/2022

Sample Receipt Checklist (SRC)

Client: ARCADIS Cooler Inspected by/date: KCJ 5/24/24 Lot #: 24035

Means of receipt: ☐ Pace ☐ Client ☐ UPS ☒ FedEx ☐ Other:			
☑ Yes	☐ No		1. Were custody seals present on the cooler?
☒ Yes	☐ No	☐ NA	2. If custody seals were present, were they intact and unbroken?

pH Strip ID: n/a Chlorine Strip ID: n/a Tested by:
Original temperature upon receipt / Derived (Corrected) temperature upon receipt %Solid Snap-Cup ID: n/a
4.4 / 4.4 °C 2.1 / 2.1 °C n/a / n/a °C n/a / n/a °C
Method: ☐ Temperature Blank ☒ Against Bottles IR Gun ID: 8 IR Gun Correction Factor: 0 °C
Method of coolant: ☑ Wet Ice ☐ Ice Packs ☐ Dry Ice ☐ None

☒ Yes	☐ No	☐ NA	3. Were all coolers received at or below 6.0°C? If no, was Project Manager notified? PM was Notified by: phone / email / face-to-face (circle one).
☒ Yes	☐ No	☐ NA	4. Is the commercial courier's packing slip attached to this form?
☑ Yes	☐ No		5. Were proper custody procedures (relinquished/received) followed?
☒ Yes	☐ No		6. Were sample IDs listed on the COC and all sample containers?
☒ Yes	☐ No		7. Was collection date & time listed on the COC and all sample containers?
☐ Yes	☒ No		8. Did all container label information (ID, date, time) agree with the COC?
☒ Yes	☐ No		9. Were tests to be performed listed on the COC?
☒ Yes	☐ No		10. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)?
☒ Yes	☐ No		11. Was adequate sample volume available?
☒ Yes	☐ No		12. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
☒ Yes	☐ No		13. Were all samples containers accounted for? (No missing/excess)
☐ Yes	☐ No	☒ NA	14. Were VOA, 8015C and RSK-175 samples free of bubbles >"pea-size" (¼"or 6mm in diameter) in any of the VOA vials?
☐ Yes	☐ No	☒ NA	15. Were all DRO/metals/nutrient samples received at a pH of < 2?
☐ Yes	☐ No	☒ NA	16. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
☐ Yes	☐ No	☒ NA	17. Were all applicable NH_3/TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?
☒ Yes	☐ No	☐ NA	18. Was the quote number listed on the container label? If yes, Quote # 25329

Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)

Sample(s) n/a were received incorrectly preserved and were adjusted accordingly in sample receiving with n/a mL of circle one: H_2SO_4, HNO_3, HCl, NaOH using SR # n/a. ☐
Time of preservation n/a. If more than one preservative is needed, please note in the comments below.

Sample(s) n/a were received with bubbles >6 mm in diameter.

Samples(s) n/a were received with TRC > 0.5 mg/L (If #19 is *no*) and were adjusted accordingly in sample receiving with sodium thiosulfate ($Na_2S_2O_3$) with Unique ID: n/a.

Comments: SAMPLE "MW-22-147-052324" WAS ~~LABELED~~ LABLED AS "MW-22-137-052324", AND SAMPLE ~~"MW-21-137-052324"~~ "MW-21-136-052324" WAS LABLED AS "MW-21-137-052324"

Qualtrax ID: 56360 Pace® Analytical Services, LLC Page 1 of 1

Analytical Laboratory Report

Report ID: S65315.01(01)+QC01
Generated on 08/22/2024

Report to

Attention: Kaitlyn Hunt
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 C:947-777-5215 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Addtional Contacts: Marina Samp, Tiffany Linder

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
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Report Summary

Lab Sample ID(s): S65315.01-S65315.12
Project: 30214036 / RACER Lansing
Collected Date(s): 08/19/2024
Submitted Date/Time: 08/20/2024 13:30
Sampled by: Billy Cobern
P.O. #: 30214036.0470A

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Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Starred (*) analytes are not NY NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.
Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.
All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.
For a specific list of accredited analytes, please feel free to contact the laboratory or visit https://www.meritlabs.com/certifications.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
o	Associated EIS outside of control limits
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
q	Qualifier ion ratio outside of control limits
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
N/A	Not Applicable
SW5030C/8260C	SW 846 Method 8260C Revision 3 August 2006 / 5030C Revision 3 May 2003
SW8260B - SIM	SW 846 Method 8260B Revision 2 December 1996 SIMs

Sample Summary (12 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S65315.01	MW-22-156_081924	Groundwater	08/19/24 11:30
S65315.02	MW-22-153_081924	Groundwater	08/19/24 12:30
S65315.03	MW-22-153_081924 MS	Groundwater	08/19/24 12:30
S65315.04	MW-22-153_081924 MSD	Groundwater	08/19/24 12:30
S65315.05	MW-22-155_081924	Groundwater	08/19/24 13:20
S65315.06	MW-23-161_081924	Groundwater	08/19/24 14:15
S65315.07	MW-23-161_081924 MS	Groundwater	08/19/24 14:15
S65315.08	MW-23-161_081924 MSD	Groundwater	08/19/24 14:15
S65315.09	MW-23-162_081924	Groundwater	08/19/24 15:20
S65315.10	MW-23-163_081924	Groundwater	08/19/24 16:10
S65315.11	MW-22-157_081924	Groundwater	08/19/24 17:25
S65315.12	Trip Blank	Water	08/19/24 00:01

Lab Sample ID: S65315.01
Sample Tag: MW-22-156_081924
Collected Date/Time: 08/19/2024 11:30
Matrix: Groundwater
COC Reference: 172117

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	7.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	08/22/24 10:55	NDK	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 08/21/24 20:57, Analyst: ACK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	100		ug/L	10	60-29-7	Y
Acetone	Not detected	500		ug/L	10	67-64-1	Y
Methyl iodide	Not detected	10		ug/L	10	74-88-4	Y
Carbon disulfide	Not detected	50		ug/L	10	75-15-0	Y
tert-Methyl butyl ether (MTBE)	Not detected	50		ug/L	10	1634-04-4	Y
Acrylonitrile	Not detected	20		ug/L	10	107-13-1	Y
2-Butanone (MEK)	Not detected	250		ug/L	10	78-93-3	Y
Dichlorodifluoromethane	Not detected	50		ug/L	10	75-71-8	Y
Chloromethane	Not detected	50		ug/L	10	74-87-3	Y
Vinyl chloride	Not detected	10		ug/L	10	75-01-4	Y
Bromomethane	Not detected	50		ug/L	10	74-83-9	Y
Chloroethane	Not detected	50		ug/L	10	75-00-3	Y
Trichlorofluoromethane	Not detected	10		ug/L	10	75-69-4	Y
1,1-Dichloroethene	20	10		ug/L	10	75-35-4	Y
Methylene chloride	Not detected	50		ug/L	10	75-09-2	Y
trans-1,2-Dichloroethene	Not detected	10		ug/L	10	156-60-5	Y
1,1-Dichloroethane	220	10		ug/L	10	75-34-3	Y
cis-1,2-Dichloroethene	Not detected	10		ug/L	10	156-59-2	Y
Tetrahydrofuran*	Not detected	900		ug/L	10	109-99-9	Y
Chloroform	Not detected	10		ug/L	10	67-66-3	Y
Bromochloromethane	Not detected	10		ug/L	10	74-97-5	Y
1,1,1-Trichloroethane	Not detected	10		ug/L	10	71-55-6	Y
4-Methyl-2-pentanone (MIBK)	Not detected	500		ug/L	10	108-10-1	Y
2-Hexanone	Not detected	500		ug/L	10	591-78-6	Y
Carbon tetrachloride	Not detected	10		ug/L	10	56-23-5	Y
Benzene	Not detected	10		ug/L	10	71-43-2	Y
1,2-Dichloroethane	Not detected	10		ug/L	10	107-06-2	Y
Trichloroethene	Not detected	10		ug/L	10	79-01-6	Y
1,2-Dichloropropane	Not detected	10		ug/L	10	78-87-5	Y
Bromodichloromethane	Not detected	10		ug/L	10	75-27-4	Y
Dibromomethane	Not detected	50		ug/L	10	74-95-3	Y
cis-1,3-Dichloropropene	Not detected	10		ug/L	10	10061-01-5	Y
Toluene	Not detected	10		ug/L	10	108-88-3	Y
trans-1,3-Dichloropropene	Not detected	10		ug/L	10	10061-02-6	Y
1,1,2-Trichloroethane	Not detected	10		ug/L	10	79-00-5	Y
Tetrachloroethene	Not detected	10		ug/L	10	127-18-4	Y

Y-Elevated reporting limit due to high target concentration

Lab Sample ID: S65315.01 (continued)
Sample Tag: MW-22-156_081924

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 08/21/24 20:57, Analyst: ACK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
trans-1,4-Dichloro-2-butene	Not detected	10		ug/L	10	110-57-6	Y
Dibromochloromethane	Not detected	50		ug/L	10	124-48-1	Y
1,2-Dibromoethane	Not detected	10		ug/L	10	106-93-4	Y
Chlorobenzene	Not detected	10		ug/L	10	108-90-7	Y
1,1,1,2-Tetrachloroethane	Not detected	10		ug/L	10	630-20-6	Y
Ethylbenzene	Not detected	10		ug/L	10	100-41-4	Y
p,m-Xylene*	Not detected	20		ug/L	10		Y
o-Xylene	Not detected	10		ug/L	10	95-47-6	Y
Styrene	Not detected	10		ug/L	10	100-42-5	Y
Isopropylbenzene	Not detected	50		ug/L	10	98-82-8	Y
Bromoform	Not detected	10		ug/L	10	75-25-2	Y
1,1,2,2-Tetrachloroethane	Not detected	10		ug/L	10	79-34-5	Y
1,2,3-Trichloropropane	Not detected	10		ug/L	10	96-18-4	Y
n-Propylbenzene	Not detected	10		ug/L	10	103-65-1	Y
Bromobenzene	Not detected	10		ug/L	10	108-86-1	Y
1,3,5-Trimethylbenzene	Not detected	10		ug/L	10	108-67-8	Y
tert-Butylbenzene	Not detected	10		ug/L	10	98-06-6	Y
1,2,4-Trimethylbenzene	Not detected	10		ug/L	10	95-63-6	Y
sec-Butylbenzene	Not detected	10		ug/L	10	135-98-8	Y
p-Isopropyltoluene	Not detected	50		ug/L	10	99-87-6	Y
1,3-Dichlorobenzene	Not detected	10		ug/L	10	541-73-1	Y
1,4-Dichlorobenzene	Not detected	10		ug/L	10	106-46-7	Y
1,2-Dichlorobenzene	Not detected	10		ug/L	10	95-50-1	Y
1,2,3-Trimethylbenzene	Not detected	10		ug/L	10	526-73-8	Y
n-Butylbenzene	Not detected	10		ug/L	10	104-51-8	Y
Hexachloroethane	Not detected	50		ug/L	10	67-72-1	Y
1,2-Dibromo-3-chloropropane	Not detected	50		ug/L	10	96-12-8	Y
1,2,4-Trichlorobenzene	Not detected	50		ug/L	10	120-82-1	Y
1,2,3-Trichlorobenzene	Not detected	50		ug/L	10	87-61-6	Y
Naphthalene	Not detected	50		ug/L	10	91-20-3	Y
2-Methylnaphthalene	Not detected	50		ug/L	10	91-57-6	Y

Y-Elevated reporting limit due to high target concentration

Lab Sample ID: S65315.02
Sample Tag: MW-22-153_081924
Collected Date/Time: 08/19/2024 12:30
Matrix: Groundwater
COC Reference: 172117

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	7.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	08/22/24 10:55	NDK	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 08/21/24 14:45, Analyst: ACK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	1	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	104	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	

Lab Sample ID: S65315.02 (continued)
Sample Tag: MW-22-153_081924

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 08/21/24 14:45, Analyst: ACK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Lab Sample ID: S65315.03
Sample Tag: MW-22-153_081924 MS
Collected Date/Time: 08/19/2024 12:30
Matrix: Groundwater
COC Reference: 172117

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	7.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	08/22/24 10:55	NDK	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 08/21/24 21:21, Analyst: ACK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	52	10		ug/L	1	60-29-7	1
Acetone	54	50		ug/L	1	67-64-1	1
Methyl iodide	59	1		ug/L	1	74-88-4	1
Carbon disulfide	53	5		ug/L	1	75-15-0	1
tert-Methyl butyl ether (MTBE)	53	5		ug/L	1	1634-04-4	1
Acrylonitrile	54	2		ug/L	1	107-13-1	1
2-Butanone (MEK)	52	25		ug/L	1	78-93-3	1
Dichlorodifluoromethane	52	5		ug/L	1	75-71-8	1
Chloromethane	50	5		ug/L	1	74-87-3	1
Vinyl chloride	50	1		ug/L	1	75-01-4	1
Bromomethane	72	5		ug/L	1	74-83-9	1
Chloroethane	64	5		ug/L	1	75-00-3	1
Trichlorofluoromethane	54	1		ug/L	1	75-69-4	1
1,1-Dichloroethene	56	1		ug/L	1	75-35-4	1
Methylene chloride	52	5		ug/L	1	75-09-2	1
trans-1,2-Dichloroethene	55	1		ug/L	1	156-60-5	1
1,1-Dichloroethane	131	1		ug/L	1	75-34-3	1
cis-1,2-Dichloroethene	55	1		ug/L	1	156-59-2	1
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	1
Chloroform	57	1		ug/L	1	67-66-3	1
Bromochloromethane	55	1		ug/L	1	74-97-5	1
1,1,1-Trichloroethane	55	1		ug/L	1	71-55-6	1
4-Methyl-2-pentanone (MIBK)	51	50		ug/L	1	108-10-1	1
2-Hexanone	52	50		ug/L	1	591-78-6	1
Carbon tetrachloride	53	1		ug/L	1	56-23-5	1
Benzene	53	1		ug/L	1	71-43-2	1
1,2-Dichloroethane	55	1		ug/L	1	107-06-2	1
Trichloroethene	52	1		ug/L	1	79-01-6	1
1,2-Dichloropropane	53	1		ug/L	1	78-87-5	1
Bromodichloromethane	55	1		ug/L	1	75-27-4	1
Dibromomethane	51	5		ug/L	1	74-95-3	1
cis-1,3-Dichloropropene	54	1		ug/L	1	10061-01-5	1
Toluene	54	1		ug/L	1	108-88-3	1
trans-1,3-Dichloropropene	55	1		ug/L	1	10061-02-6	1
1,1,2-Trichloroethane	54	1		ug/L	1	79-00-5	1
Tetrachloroethene	50	1		ug/L	1	127-18-4	1

1-*Spiked at 50 ug/L

Lab Sample ID: S65315.03 (continued)
Sample Tag: MW-22-153_081924 MS

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 08/21/24 21:21, Analyst: ACK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
trans-1,4-Dichloro-2-butene	52	1		ug/L	1	110-57-6	1
Dibromochloromethane	51	5		ug/L	1	124-48-1	1
1,2-Dibromoethane	51	1		ug/L	1	106-93-4	1
Chlorobenzene	52	1		ug/L	1	108-90-7	1
1,1,1,2-Tetrachloroethane	51	1		ug/L	1	630-20-6	1
Ethylbenzene	54	1		ug/L	1	100-41-4	1
p,m-Xylene*	109	2		ug/L	1		1
o-Xylene	56	1		ug/L	1	95-47-6	1
Styrene	55	1		ug/L	1	100-42-5	1
Isopropylbenzene	55	5		ug/L	1	98-82-8	1
Bromoform	50	1		ug/L	1	75-25-2	1
1,1,2,2-Tetrachloroethane	54	1		ug/L	1	79-34-5	1
1,2,3-Trichloropropane	53	1		ug/L	1	96-18-4	1
n-Propylbenzene	53	1		ug/L	1	103-65-1	1
Bromobenzene	51	1		ug/L	1	108-86-1	1
1,3,5-Trimethylbenzene	55	1		ug/L	1	108-67-8	1
tert-Butylbenzene	58	1		ug/L	1	98-06-6	1
1,2,4-Trimethylbenzene	56	1		ug/L	1	95-63-6	1
sec-Butylbenzene	56	1		ug/L	1	135-98-8	1
p-Isopropyltoluene	56	5		ug/L	1	99-87-6	1
1,3-Dichlorobenzene	53	1		ug/L	1	541-73-1	1
1,4-Dichlorobenzene	52	1		ug/L	1	106-46-7	1
1,2-Dichlorobenzene	53	1		ug/L	1	95-50-1	1
1,2,3-Trimethylbenzene	54	1		ug/L	1	526-73-8	1
n-Butylbenzene	57	1		ug/L	1	104-51-8	1
Hexachloroethane	49	5		ug/L	1	67-72-1	1
1,2-Dibromo-3-chloropropane	51	5		ug/L	1	96-12-8	1
1,2,4-Trichlorobenzene	50	5		ug/L	1	120-82-1	1
1,2,3-Trichlorobenzene	50	5		ug/L	1	87-61-6	1
Naphthalene	53	5		ug/L	1	91-20-3	1
2-Methylnaphthalene	49	5		ug/L	1	91-57-6	1

1-*Spiked at 50 ug/L

Lab Sample ID: S65315.04
Sample Tag: MW-22-153_081924 MSD
Collected Date/Time: 08/19/2024 12:30
Matrix: Groundwater
COC Reference: 172117

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	7.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	08/22/24 10:55	NDK	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 08/21/24 21:44, Analyst: ACK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	52	10		ug/L	1	60-29-7	1
Acetone	53	50		ug/L	1	67-64-1	1
Methyl iodide	62	1		ug/L	1	74-88-4	1
Carbon disulfide	51	5		ug/L	1	75-15-0	1
tert-Methyl butyl ether (MTBE)	53	5		ug/L	1	1634-04-4	1
Acrylonitrile	52	2		ug/L	1	107-13-1	1
2-Butanone (MEK)	50	25		ug/L	1	78-93-3	1
Dichlorodifluoromethane	53	5		ug/L	1	75-71-8	1
Chloromethane	49	5		ug/L	1	74-87-3	1
Vinyl chloride	49	1		ug/L	1	75-01-4	1
Bromomethane	76	5		ug/L	1	74-83-9	1
Chloroethane	60	5		ug/L	1	75-00-3	1
Trichlorofluoromethane	52	1		ug/L	1	75-69-4	1
1,1-Dichloroethene	54	1		ug/L	1	75-35-4	1
Methylene chloride	51	5		ug/L	1	75-09-2	1
trans-1,2-Dichloroethene	53	1		ug/L	1	156-60-5	1
1,1-Dichloroethane	126	1		ug/L	1	75-34-3	1
cis-1,2-Dichloroethene	53	1		ug/L	1	156-59-2	1
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	1
Chloroform	56	1		ug/L	1	67-66-3	1
Bromochloromethane	54	1		ug/L	1	74-97-5	1
1,1,1-Trichloroethane	54	1		ug/L	1	71-55-6	1
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	1
2-Hexanone	51	50		ug/L	1	591-78-6	1
Carbon tetrachloride	52	1		ug/L	1	56-23-5	1
Benzene	51	1		ug/L	1	71-43-2	1
1,2-Dichloroethane	54	1		ug/L	1	107-06-2	1
Trichloroethene	51	1		ug/L	1	79-01-6	1
1,2-Dichloropropane	52	1		ug/L	1	78-87-5	1
Bromodichloromethane	54	1		ug/L	1	75-27-4	1
Dibromomethane	51	5		ug/L	1	74-95-3	1
cis-1,3-Dichloropropene	52	1		ug/L	1	10061-01-5	1
Toluene	53	1		ug/L	1	108-88-3	1
trans-1,3-Dichloropropene	54	1		ug/L	1	10061-02-6	1
1,1,2-Trichloroethane	53	1		ug/L	1	79-00-5	1
Tetrachloroethene	48	1		ug/L	1	127-18-4	1

1-*Spiked at 50 ug/L

Lab Sample ID: S65315.04 (continued)
Sample Tag: MW-22-153_081924 MSD

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 08/21/24 21:44, Analyst: ACK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
trans-1,4-Dichloro-2-butene	35	1		ug/L	1	110-57-6	1
Dibromochloromethane	50	5		ug/L	1	124-48-1	1
1,2-Dibromoethane	51	1		ug/L	1	106-93-4	1
Chlorobenzene	51	1		ug/L	1	108-90-7	1
1,1,1,2-Tetrachloroethane	51	1		ug/L	1	630-20-6	1
Ethylbenzene	53	1		ug/L	1	100-41-4	1
p,m-Xylene*	107	2		ug/L	1		1
o-Xylene	55	1		ug/L	1	95-47-6	1
Styrene	54	1		ug/L	1	100-42-5	1
Isopropylbenzene	54	5		ug/L	1	98-82-8	1
Bromoform	46	1		ug/L	1	75-25-2	1
1,1,2,2-Tetrachloroethane	53	1		ug/L	1	79-34-5	1
1,2,3-Trichloropropane	53	1		ug/L	1	96-18-4	1
n-Propylbenzene	55	1		ug/L	1	103-65-1	1
Bromobenzene	50	1		ug/L	1	108-86-1	1
1,3,5-Trimethylbenzene	54	1		ug/L	1	108-67-8	1
tert-Butylbenzene	56	1		ug/L	1	98-06-6	1
1,2,4-Trimethylbenzene	55	1		ug/L	1	95-63-6	1
sec-Butylbenzene	54	1		ug/L	1	135-98-8	1
p-Isopropyltoluene	55	5		ug/L	1	99-87-6	1
1,3-Dichlorobenzene	52	1		ug/L	1	541-73-1	1
1,4-Dichlorobenzene	51	1		ug/L	1	106-46-7	1
1,2-Dichlorobenzene	52	1		ug/L	1	95-50-1	1
1,2,3-Trimethylbenzene	53	1		ug/L	1	526-73-8	1
n-Butylbenzene	55	1		ug/L	1	104-51-8	1
Hexachloroethane	48	5		ug/L	1	67-72-1	1
1,2-Dibromo-3-chloropropane	49	5		ug/L	1	96-12-8	1
1,2,4-Trichlorobenzene	48	5		ug/L	1	120-82-1	1
1,2,3-Trichlorobenzene	48	5		ug/L	1	87-61-6	1
Naphthalene	52	5		ug/L	1	91-20-3	1
2-Methylnaphthalene	48	5		ug/L	1	91-57-6	1

1-*Spiked at 50 ug/L

Analytical Laboratory Report

Lab Sample ID: S65315.05
Sample Tag: MW-22-155_081924
Collected Date/Time: 08/19/2024 13:20
Matrix: Groundwater
COC Reference: 172117

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	7.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	08/22/24 10:55	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 08/21/24 17:04, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	151	1		ug/L	1	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S65315.06
Sample Tag: MW-23-161_081924
Collected Date/Time: 08/19/2024 14:15
Matrix: Groundwater
COC Reference: 172117

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	7.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	08/22/24 10:55	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 08/21/24 15:49, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	43	1		ug/L	1	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S65315.07
Sample Tag: MW-23-161_081924 MS
Collected Date/Time: 08/19/2024 14:15
Matrix: Groundwater
COC Reference: 172117

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	7.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	08/22/24 10:55	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 08/21/24 18:45, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	80	1		ug/L	1	123-91-1	1

1-Spiked at 50 ug/L

Analytical Laboratory Report

Lab Sample ID: S65315.08
Sample Tag: MW-23-161_081924 MSD
Collected Date/Time: 08/19/2024 14:15
Matrix: Groundwater
COC Reference: 172117

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	7.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	08/22/24 10:55	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 08/21/24 19:10, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	74	1		ug/L	1	123-91-1	1

1-Spiked at 50 ug/L

Lab Sample ID: S65315.09
Sample Tag: MW-23-162_081924
Collected Date/Time: 08/19/2024 15:20
Matrix: Groundwater
COC Reference: 172117

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	7.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	08/22/24 10:55	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 08/21/24 15:23, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	29	1		ug/L	1	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S65315.10
Sample Tag: MW-23-163_081924
Collected Date/Time: 08/19/2024 16:10
Matrix: Groundwater
COC Reference: 172117

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	7.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	08/22/24 10:55	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 08/21/24 14:58, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	11	1		ug/L	1	123-91-1	

Lab Sample ID: S65315.11
Sample Tag: MW-22-157_081924
Collected Date/Time: 08/19/2024 17:25
Matrix: Groundwater
COC Reference: 172117

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	7.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	08/22/24 10:55	NDK	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 08/21/24 15:09, Analyst: ACK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	

Lab Sample ID: S65315.11 (continued)
Sample Tag: MW-22-157_081924

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 08/21/24 15:09, Analyst: ACK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Lab Sample ID: S65315.12
Sample Tag: Trip Blank
Collected Date/Time: 08/19/2024 00:01
Matrix: Water
COC Reference: 172117

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40mL Glass	HCL	Yes	7.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	08/22/24 10:55	NDK	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 08/21/24 15:32, Analyst: ACK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	

Lab Sample ID: S65315.12 (continued)
Sample Tag: Trip Blank

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 08/21/24 15:32, Analyst: ACK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Quality Control Report

Report ID: S65315.01(01)+QC01
Generated on 08/22/2024

Report to

Attention: Kaitlyn Hunt
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 C:947-777-5215 FAX:

Report Produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S65315.01-S65315.12
Project: 30214036 / RACER Lansing
Submitted Date/Time: 08/20/2024 13:30
Sampled by: Billy Cobern
P.O. #: 30214036.0470A

QC Report Sections

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Prep Batch Summary (Page 37)
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Internal Standards per QC Sample (Pages 52-53)
Batch QC Results (Pages 54-62)

Report Flag Descriptions

*: QC result is outside of indicated control limits
W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.

Barbara Ball
Quality Assurance Manager

Lab Sample ID: S65315.01
Sample Tag: MW-22-156_081924
Collected Date/Time: 08/19/2024 11:30
Matrix: Groundwater
COC Reference: 172117

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	08/21/24 20:57	240821A11	VF240821W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S65315.02
Sample Tag: MW-22-153_081924
Collected Date/Time: 08/19/2024 12:30
Matrix: Groundwater
COC Reference: 172117

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	08/21/24 14:45	240821A11	VF240821W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S65315.03
Sample Tag: MW-22-153_081924 MS
Collected Date/Time: 08/19/2024 12:30
Matrix: Groundwater
COC Reference: 172117

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	08/21/24 21:21	240821A11	VF240821W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S65315.04

Sample Tag: MW-22-153_081924 MSD

Collected Date/Time: 08/19/2024 12:30

Matrix: Groundwater

COC Reference: 172117

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	08/21/24 21:44	240821A11	VF240821W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S65315.05
Sample Tag: MW-22-155_081924
Collected Date/Time: 08/19/2024 13:20
Matrix: Groundwater
COC Reference: 172117

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	08/21/24 17:04	240821A9	VS240821W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S65315.06
Sample Tag: MW-23-161_081924
Collected Date/Time: 08/19/2024 14:15
Matrix: Groundwater
COC Reference: 172117

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	08/21/24 15:49	240821A9	VS240821W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S65315.07
Sample Tag: MW-23-161_081924 MS
Collected Date/Time: 08/19/2024 14:15
Matrix: Groundwater
COC Reference: 172117

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	08/21/24 18:45	240821A9	VS240821W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S65315.08

Sample Tag: MW-23-161_081924 MSD

Collected Date/Time: 08/19/2024 14:15

Matrix: Groundwater

COC Reference: 172117

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	08/21/24 19:10	240821A9	VS240821W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S65315.09
Sample Tag: MW-23-162_081924
Collected Date/Time: 08/19/2024 15:20
Matrix: Groundwater
COC Reference: 172117

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	08/21/24 15:23	240821A9	VS240821W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S65315.10
Sample Tag: MW-23-163_081924
Collected Date/Time: 08/19/2024 16:10
Matrix: Groundwater
COC Reference: 172117

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	08/21/24 14:58	240821A9	VS240821W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S65315.11
Sample Tag: MW-22-157_081924
Collected Date/Time: 08/19/2024 17:25
Matrix: Groundwater
COC Reference: 172117

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	08/21/24 15:09	240821A11	VF240821W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S65315.12

Sample Tag: Trip Blank

Collected Date/Time: 08/19/2024 00:01

Matrix: Water

COC Reference: 172117

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	08/21/24 15:32	240821A11	VF240821W1	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Prep Batch Summary

Organics - Volatiles, Prep Batch ID: VF240821W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S65315.01	Volatile Organics - DEQ List	SW5030C/8260C	08/21/24 20:57	240821A11
S65315.02	Volatile Organics - DEQ List	SW5030C/8260C	08/21/24 14:45	240821A11
S65315.03	Volatile Organics - DEQ List	SW5030C/8260C	08/21/24 21:21	240821A11
S65315.04	Volatile Organics - DEQ List	SW5030C/8260C	08/21/24 21:44	240821A11
S65315.11	Volatile Organics - DEQ List	SW5030C/8260C	08/21/24 15:09	240821A11
S65315.12	Volatile Organics - DEQ List	SW5030C/8260C	08/21/24 15:32	240821A11

Organics - Volatiles, Prep Batch ID: VS240821W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S65315.05	1,4-Dioxane	SW8260B - SIM	08/21/24 17:04	240821A9
S65315.06	1,4-Dioxane	SW8260B - SIM	08/21/24 15:49	240821A9
S65315.07	1,4-Dioxane	SW8260B - SIM	08/21/24 18:45	240821A9
S65315.08	1,4-Dioxane	SW8260B - SIM	08/21/24 19:10	240821A9
S65315.09	1,4-Dioxane	SW8260B - SIM	08/21/24 15:23	240821A9
S65315.10	1,4-Dioxane	SW8260B - SIM	08/21/24 14:58	240821A9

QC Report - Surrogates per Lab Sample

Lab Sample ID: S65315.01

Sample Tag: MW-22-156_081924

Collected Date/Time: 08/19/2024 11:30

Matrix: Groundwater

COC Reference: 172117

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240821A11, Run Date: 08/21/2024 20:57, Matrix: WW, Dilution: 10

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**91.1**	80.0	124.0
1,2-Dichloroethane-D4		**114.1**	72.0	125.0
Toluene-D8		**102.4**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S65315.02

Sample Tag: MW-22-153_081924

Collected Date/Time: 08/19/2024 12:30

Matrix: Groundwater

COC Reference: 172117

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240821A11, Run Date: 08/21/2024 14:45, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**91.2**	80.0	124.0
1,2-Dichloroethane-D4		**114.6**	72.0	125.0
Toluene-D8		**101.1**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S65315.11

Sample Tag: MW-22-157_081924

Collected Date/Time: 08/19/2024 17:25

Matrix: Groundwater

COC Reference: 172117

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240821A11, Run Date: 08/21/2024 15:09, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**91.2**	80.0	124.0
1,2-Dichloroethane-D4		**112.3**	72.0	125.0
Toluene-D8		**101.8**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S65315.12

Sample Tag: Trip Blank

Collected Date/Time: 08/19/2024 00:01

Matrix: Water

COC Reference: 172117

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240821A11, Run Date: 08/21/2024 15:32, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**90.8**	80.0	124.0
1,2-Dichloroethane-D4		**112.8**	72.0	125.0
Toluene-D8		**100.6**	89.0	112.0

QC Report - Surrogates per QC Sample

Organics - Volatiles, Prep Batch ID: VF240821W1

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 240821A11.BLKW21A

Run in Batch: 240821A11, Run Date: 08/21/2024 13:35, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**92.2**	80.0	124.0
1,2-Dichloroethane-D4		**116.6**	72.0	125.0
Toluene-D8		**102.8**	89.0	112.0

Laboratory Control Sample (LCS)

Lab Sample ID: 240821A11.LCSW21A

Run in Batch: 240821A11, Run Date: 08/21/2024 12:03, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**97.9**	80.0	124.0
1,2-Dichloroethane-D4		**109.1**	72.0	125.0
Toluene-D8		**102.3**	89.0	112.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240821A11.LCSDW21A, Parent Sample ID: 240821A11.LCSW21A

Run in Batch: 240821A11, Run Date: 08/21/2024 12:26, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**96.1**	80.0	124.0
1,2-Dichloroethane-D4		**108.7**	72.0	125.0
Toluene-D8		**101.2**	89.0	112.0

Matrix Spike (MS)

Lab Sample ID: 240821A11.6531503M, Parent Sample ID: S65315.02

Run in Batch: 240821A11, Run Date: 08/21/2024 21:21, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**97.7**	80.0	124.0
1,2-Dichloroethane-D4		**111.0**	72.0	125.0
Toluene-D8		**103.4**	89.0	112.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 240821A11.6531504N, Parent Sample ID: 240821A11.6531503M

Run in Batch: 240821A11, Run Date: 08/21/2024 21:44, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**98.1**	80.0	124.0
1,2-Dichloroethane-D4		**110.6**	72.0	125.0
Toluene-D8		**103.1**	89.0	112.0

Organics - Volatiles, Prep Batch ID: VS240821W1

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 240821A9.BLKW21A

Run in Batch: 240821A9, Run Date: 08/21/2024 14:33, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample (LCS)

Lab Sample ID: 240821A9.LCSW21A

Run in Batch: 240821A9, Run Date: 08/21/2024 12:52, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240821A9.LCSDW21A, Parent Sample ID: 240821A9.LCSW21A

Run in Batch: 240821A9, Run Date: 08/21/2024 13:17, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Matrix Spike (MS)

Lab Sample ID: 240821A9.6531507M, Parent Sample ID: S65315.06

Run in Batch: 240821A9, Run Date: 08/21/2024 18:45, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Matrix Spike Duplicate (MSD)

Lab Sample ID: 240821A9.6531508N, Parent Sample ID: 240821A9.6531507M

Run in Batch: 240821A9, Run Date: 08/21/2024 19:10, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S65315.01

Sample Tag: MW-22-156_081924

Collected Date/Time: 08/19/2024 11:30

Matrix: Groundwater

COC Reference: 172117

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240821A11, Run Date: 08/21/2024 20:57, Matrix: WW, Dilution: 10

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**93.2**	50.0	200.0
1,4-Difluorobenzene		**94.8**	50.0	200.0
Chlorobenzene-D5		**92.6**	50.0	200.0
1,4-Dichlorobenzene-D4		**79.4**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S65315.02

Sample Tag: MW-22-153_081924

Collected Date/Time: 08/19/2024 12:30

Matrix: Groundwater

COC Reference: 172117

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240821A11, Run Date: 08/21/2024 14:45, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**94.9**	50.0	200.0
1,4-Difluorobenzene		**96.9**	50.0	200.0
Chlorobenzene-D5		**95.7**	50.0	200.0
1,4-Dichlorobenzene-D4		**82.0**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S65315.05

Sample Tag: MW-22-155_081924

Collected Date/Time: 08/19/2024 13:20

Matrix: Groundwater

COC Reference: 172117

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 240821A9, Run Date: 08/21/2024 17:04, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**120.9**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S65315.06

Sample Tag: MW-23-161_081924

Collected Date/Time: 08/19/2024 14:15

Matrix: Groundwater

COC Reference: 172117

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 240821A9, Run Date: 08/21/2024 15:49, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**107.4**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S65315.09

Sample Tag: MW-23-162_081924

Collected Date/Time: 08/19/2024 15:20

Matrix: Groundwater

COC Reference: 172117

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 240821A9, Run Date: 08/21/2024 15:23, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**140.1**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S65315.10

Sample Tag: MW-23-163_081924

Collected Date/Time: 08/19/2024 16:10

Matrix: Groundwater

COC Reference: 172117

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 240821A9, Run Date: 08/21/2024 14:58, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**112.4**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S65315.11

Sample Tag: MW-22-157_081924

Collected Date/Time: 08/19/2024 17:25

Matrix: Groundwater

COC Reference: 172117

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240821A11, Run Date: 08/21/2024 15:09, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**95.6**	50.0	200.0
1,4-Difluorobenzene		**97.7**	50.0	200.0
Chlorobenzene-D5		**95.3**	50.0	200.0
1,4-Dichlorobenzene-D4		**80.8**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S65315.12

Sample Tag: Trip Blank

Collected Date/Time: 08/19/2024 00:01

Matrix: Water

COC Reference: 172117

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240821A11, Run Date: 08/21/2024 15:32, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**94.9**	50.0	200.0
1,4-Difluorobenzene		**97.6**	50.0	200.0
Chlorobenzene-D5		**94.8**	50.0	200.0
1,4-Dichlorobenzene-D4		**81.1**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VF240821W1

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 240821A11.BLKW21A

Run in Batch: 240821A11, Run Date: 08/21/2024 13:35, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**96.3**	50.0	200.0
1,4-Difluorobenzene		**97.3**	50.0	200.0
Chlorobenzene-D5		**97.8**	50.0	200.0
1,4-Dichlorobenzene-D4		**84.1**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 240821A11.LCSW21A

Run in Batch: 240821A11, Run Date: 08/21/2024 12:03, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**109.7**	50.0	200.0
1,4-Difluorobenzene		**110.7**	50.0	200.0
Chlorobenzene-D5		**110.3**	50.0	200.0
1,4-Dichlorobenzene-D4		**110.2**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240821A11.LCSDW21A, Parent Sample ID: 240821A11.LCSW21A

Run in Batch: 240821A11, Run Date: 08/21/2024 12:26, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**108.3**	50.0	200.0
1,4-Difluorobenzene		**110.2**	50.0	200.0
Chlorobenzene-D5		**110.5**	50.0	200.0
1,4-Dichlorobenzene-D4		**106.2**	50.0	200.0

Matrix Spike (MS)

Lab Sample ID: 240821A11.6531503M, Parent Sample ID: S65315.02

Run in Batch: 240821A11, Run Date: 08/21/2024 21:21, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**97.2**	50.0	200.0
1,4-Difluorobenzene		**100.7**	50.0	200.0
Chlorobenzene-D5		**100.4**	50.0	200.0
1,4-Dichlorobenzene-D4		**99.3**	50.0	200.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 240821A11.6531504N, Parent Sample ID: 240821A11.6531503M

Run in Batch: 240821A11, Run Date: 08/21/2024 21:44, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**103.3**	50.0	200.0
1,4-Difluorobenzene		**105.5**	50.0	200.0
Chlorobenzene-D5		**105.1**	50.0	200.0
1,4-Dichlorobenzene-D4		**104.7**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VS240821W1

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 240821A9.BLKW21A

Run in Batch: 240821A9, Run Date: 08/21/2024 14:33, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**103.7**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 240821A9.LCSW21A

Run in Batch: 240821A9, Run Date: 08/21/2024 12:52, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**95.6**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240821A9.LCSDW21A, Parent Sample ID: 240821A9.LCSW21A

Run in Batch: 240821A9, Run Date: 08/21/2024 13:17, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**137.1**	50.0	200.0

Matrix Spike (MS)

Lab Sample ID: 240821A9.6531507M, Parent Sample ID: S65315.06

Run in Batch: 240821A9, Run Date: 08/21/2024 18:45, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**125.1**	50.0	200.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 240821A9.6531508N, Parent Sample ID: 240821A9.6531507M

Run in Batch: 240821A9, Run Date: 08/21/2024 19:10, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**124.8**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VF240821W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 240821A11.BLKW21A

Run in Batch: 240821A11, Run Date: 08/21/2024 13:35, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Diethyl ether		ND	1.00	ug/l
Acetone		ND	10.00	ug/l
Methyl iodide		ND	1.00	ug/l
Carbon disulfide		ND	1.00	ug/l
tert-Methyl butyl ether (MTBE)		ND	1.00	ug/l
Acrylonitrile		ND	1.00	ug/l
2-Butanone (MEK)		ND	10.00	ug/l
Dichlorodifluoromethane		ND	1.00	ug/l
Chloromethane		ND	1.00	ug/l
Vinyl chloride		ND	1.00	ug/l
Bromomethane		ND	1.00	ug/l
Chloroethane		ND	1.00	ug/l
Trichlorofluoromethane		ND	1.00	ug/l
1,1-Dichloroethene		ND	1.00	ug/l
Methylene chloride		ND	1.00	ug/l
trans-1,2-Dichloroethene		ND	1.00	ug/l
1,1-Dichloroethane		ND	1.00	ug/l
cis-1,2-Dichloroethene		ND	1.00	ug/l
Tetrahydrofuran		ND	10.00	ug/l
Chloroform		ND	1.00	ug/l
Bromochloromethane		ND	1.00	ug/l
1,1,1-Trichloroethane		ND	1.00	ug/l
4-Methyl-2-pentanone (MIBK)		ND	10.00	ug/l
2-Hexanone		ND	10.00	ug/l
Carbon tetrachloride		ND	1.00	ug/l
Benzene		ND	1.00	ug/l
1,2-Dichloroethane		ND	1.00	ug/l
Trichloroethene		ND	1.00	ug/l
1,2-Dichloropropane		ND	1.00	ug/l
Bromodichloromethane		ND	1.00	ug/l
Dibromomethane		ND	1.00	ug/l
cis-1,3-Dichloropropene		ND	1.00	ug/l
Toluene		ND	1.00	ug/l
trans-1,3-Dichloropropene		ND	1.00	ug/l
1,1,2-Trichloroethane		ND	1.00	ug/l
Tetrachloroethene		ND	1.00	ug/l
trans-1,4-Dichloro-2-butene		ND	1.00	ug/l
Dibromochloromethane		ND	1.00	ug/l
1,2-Dibromoethane		ND	1.00	ug/l
Chlorobenzene		ND	1.00	ug/l
1,1,1,2-Tetrachloroethane		ND	1.00	ug/l
Ethylbenzene		ND	1.00	ug/l
p,m-Xylene		ND	2.00	ug/l
o-Xylene		ND	1.00	ug/l
Styrene		ND	1.00	ug/l
Isopropylbenzene		ND	1.00	ug/l

Organics - Volatiles, Prep Batch ID: VF240821W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK) (continued)

Lab Sample ID: 240821A11.BLKW21A

Run in Batch: 240821A11, Run Date: 08/21/2024 13:35, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Bromoform		ND	1.00	ug/l
1,1,2,2-Tetrachloroethane		ND	1.00	ug/l
1,2,3-Trichloropropane		ND	1.00	ug/l
n-Propylbenzene		ND	1.00	ug/l
Bromobenzene		ND	1.00	ug/l
1,3,5-Trimethylbenzene		ND	1.00	ug/l
tert-Butylbenzene		ND	1.00	ug/l
1,2,4-Trimethylbenzene		ND	1.00	ug/l
sec-Butylbenzene		ND	1.00	ug/l
p-Isopropyltoluene		ND	1.00	ug/l
1,3-Dichlorobenzene		ND	1.00	ug/l
1,4-Dichlorobenzene		ND	1.00	ug/l
1,2-Dichlorobenzene		ND	1.00	ug/l
1,2,3-Trimethylbenzene		ND	1.00	ug/l
n-Butylbenzene		ND	1.00	ug/l
Hexachloroethane		ND	1.00	ug/l
1,2-Dibromo-3-chloropropane		ND	1.00	ug/l
1,2,4-Trichlorobenzene		ND	1.00	ug/l
1,2,3-Trichlorobenzene		ND	1.00	ug/l
Naphthalene		ND	1.00	ug/l
2-Methylnaphthalene		ND	1.00	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 240821A11.LCSW21A

Run in Batch: 240821A11, Run Date: 08/21/2024 12:03, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Diethyl ether		95.6	67.4	121.2
Acetone		92.7	29.9	161.5
Methyl iodide	*	131.2	68.8	116.4
Carbon disulfide		100.6	63.8	137.4
tert-Methyl butyl ether (MTBE)		99.0	73.2	122.4
Acrylonitrile		96.0	69.9	128.9
2-Butanone (MEK)		92.5	44.0	134.4
Dichlorodifluoromethane		104.5	10.0	222.8
Chloromethane		93.8	23.8	166.5
Vinyl chloride		92.7	43.5	149.1
Bromomethane		147.9	56.8	151.3
Chloroethane		111.1	53.4	149.4
Trichlorofluoromethane		97.2	59.7	151.8
1,1-Dichloroethene		100.9	69.6	139.4
Methylene chloride		97.1	73.3	121.1
trans-1,2-Dichloroethene		103.4	73.6	129.3
1,1-Dichloroethane		102.4	71.5	126.2
cis-1,2-Dichloroethene		100.8	76.6	122.1
Tetrahydrofuran		98.7	59.0	117.9
Chloroform		105.8	78.4	124.0

Organics - Volatiles, Prep Batch ID: VF240821W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 240821A11.LCSW21A

Run in Batch: 240821A11, Run Date: 08/21/2024 12:03, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Bromochloromethane		101.3	78.2	120.8
1,1,1-Trichloroethane		103.4	79.4	130.9
4-Methyl-2-pentanone (MIBK)		90.8	71.6	125.2
2-Hexanone		92.8	55.4	136.9
Carbon tetrachloride		100.3	72.6	133.0
Benzene		97.8	79.9	124.9
1,2-Dichloroethane		101.6	76.0	126.3
Trichloroethene		98.4	79.7	124.2
1,2-Dichloropropane		98.2	78.6	126.4
Bromodichloromethane		103.3	80.4	128.2
Dibromomethane		94.6	76.9	122.1
cis-1,3-Dichloropropene		105.2	79.8	129.9
Toluene		101.7	79.8	124.5
trans-1,3-Dichloropropene		106.9	74.0	131.3
1,1,2-Trichloroethane		98.3	78.7	123.1
Tetrachloroethene		93.8	74.5	124.5
trans-1,4-Dichloro-2-butene		110.0	68.6	135.4
Dibromochloromethane		97.8	74.6	127.2
1,2-Dibromoethane		95.8	70.3	133.7
Chlorobenzene		96.9	79.2	122.7
1,1,1,2-Tetrachloroethane		96.5	80.3	128.2
Ethylbenzene		101.8	79.5	129.1
p,m-Xylene		103.8	79.4	132.2
o-Xylene		105.5	80.2	131.0
Styrene		105.8	69.5	126.7
Isopropylbenzene		104.4	74.4	121.5
Bromoform		96.5	69.4	128.0
1,1,2,2-Tetrachloroethane		100.0	79.8	126.3
1,2,3-Trichloropropane		96.8	78.3	138.8
n-Propylbenzene		100.5	82.0	130.7
Bromobenzene		96.4	78.7	124.6
1,3,5-Trimethylbenzene		104.4	81.3	128.9
tert-Butylbenzene		108.4	80.7	128.9
1,2,4-Trimethylbenzene		106.7	81.4	130.8
sec-Butylbenzene		105.1	77.4	129.8
p-Isopropyltoluene		106.4	79.8	137.5
1,3-Dichlorobenzene		99.5	77.0	131.3
1,4-Dichlorobenzene		98.1	20.7	137.7
1,2-Dichlorobenzene		98.6	10.0	166.2
1,2,3-Trimethylbenzene		102.6	76.3	124.2
n-Butylbenzene		107.8	80.0	133.3
Hexachloroethane		93.7	23.8	138.1
1,2-Dibromo-3-chloropropane		90.7	21.2	189.4
1,2,4-Trichlorobenzene		93.5	27.4	143.4
1,2,3-Trichlorobenzene		93.1	75.4	131.4
Naphthalene		97.2	32.9	135.8

Organics - Volatiles, Prep Batch ID: VF240821W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 240821A11.LCSW21A

Run in Batch: 240821A11, Run Date: 08/21/2024 12:03, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
2-Methylnaphthalene		90.1	25.5	165.5

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240821A11.LCSDW21A, Parent Sample ID: 240821A11.LCSW21A

Run in Batch: 240821A11, Run Date: 08/21/2024 12:26, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Diethyl ether		101.2	67.4	121.2	5.8	30.0
Acetone		101.6	29.9	161.5	9.2	30.0
Methyl iodide	*	127.4	68.8	116.4	3.0	30.0
Carbon disulfide		98.5	63.8	137.4	2.2	30.0
tert-Methyl butyl ether (MTBE)		103.3	73.2	122.4	4.3	30.0
Acrylonitrile		100.8	69.9	128.9	4.9	30.0
2-Butanone (MEK)		109.0	44.0	134.4	16.4	30.0
Dichlorodifluoromethane		104.6	10.0	222.8	0.1	30.0
Chloromethane		95.5	23.8	166.5	1.7	30.0
Vinyl chloride		90.3	43.5	149.1	2.7	30.0
Bromomethane	*	152.5	56.8	151.3	3.1	30.0
Chloroethane		109.2	53.4	149.4	1.7	30.0
Trichlorofluoromethane		97.1	59.7	151.8	0.1	30.0
1,1-Dichloroethene		100.2	69.6	139.4	0.8	30.0
Methylene chloride		98.2	73.3	121.1	1.2	30.0
trans-1,2-Dichloroethene		101.4	73.6	129.3	2.0	30.0
1,1-Dichloroethane		102.1	71.5	126.2	0.2	30.0
cis-1,2-Dichloroethene		101.0	76.6	122.1	0.2	30.0
Tetrahydrofuran		106.8	59.0	117.9	7.9	30.0
Chloroform		107.2	78.4	124.0	1.3	30.0
Bromochloromethane		103.3	78.2	120.8	1.9	30.0
1,1,1-Trichloroethane		102.7	79.4	130.9	0.7	30.0
4-Methyl-2-pentanone (MIBK)		103.9	71.6	125.2	13.5	30.0
2-Hexanone		97.8	55.4	136.9	5.2	30.0
Carbon tetrachloride		98.2	72.6	133.0	2.1	30.0
Benzene		97.5	79.9	124.9	0.3	30.0
1,2-Dichloroethane		103.3	76.0	126.3	1.6	30.0
Trichloroethene		96.2	79.7	124.2	2.3	30.0
1,2-Dichloropropane		99.7	78.6	126.4	1.5	30.0
Bromodichloromethane		105.3	80.4	128.2	1.9	30.0
Dibromomethane		97.6	76.9	122.1	3.1	30.0
cis-1,3-Dichloropropene		105.3	79.8	129.9	0.1	30.0
Toluene		101.6	79.8	124.5	0.1	30.0
trans-1,3-Dichloropropene		110.6	74.0	131.3	3.3	30.0
1,1,2-Trichloroethane		101.8	78.7	123.1	3.5	30.0
Tetrachloroethene		92.3	74.5	124.5	1.5	30.0
trans-1,4-Dichloro-2-butene		112.7	68.6	135.4	2.4	30.0
Dibromochloromethane		99.7	74.6	127.2	1.9	30.0
1,2-Dibromoethane		99.1	70.3	133.7	3.4	30.0
Chlorobenzene		96.3	79.2	122.7	0.7	30.0

Organics - Volatiles, Prep Batch ID: VF240821W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: 240821A11.LCSDW21A, Parent Sample ID: 240821A11.LCSW21A

Run in Batch: 240821A11, Run Date: 08/21/2024 12:26, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,1,1,2-Tetrachloroethane		97.6	80.3	128.2	1.1	30.0
Ethylbenzene		100.3	79.5	129.1	1.5	30.0
p,m-Xylene		102.0	79.4	132.2	1.8	30.0
o-Xylene		104.2	80.2	131.0	1.2	30.0
Styrene		105.2	69.5	126.7	0.6	30.0
Isopropylbenzene		102.7	74.4	121.5	1.6	30.0
Bromoform		99.8	69.4	128.0	3.4	30.0
1,1,2,2-Tetrachloroethane		103.2	79.8	126.3	3.2	30.0
1,2,3-Trichloropropane		101.6	78.3	138.8	4.8	30.0
n-Propylbenzene		103.5	82.0	130.7	3.0	30.0
Bromobenzene		97.1	78.7	124.6	0.8	30.0
1,3,5-Trimethylbenzene		102.4	81.3	128.9	1.9	30.0
tert-Butylbenzene		106.0	80.7	128.9	2.2	30.0
1,2,4-Trimethylbenzene		105.1	81.4	130.8	1.5	30.0
sec-Butylbenzene		105.6	77.4	129.8	0.5	30.0
p-Isopropyltoluene		106.5	79.8	137.5	0.1	30.0
1,3-Dichlorobenzene		102.8	77.0	131.3	3.3	30.0
1,4-Dichlorobenzene		101.7	20.7	137.7	3.5	30.0
1,2-Dichlorobenzene		103.0	10.0	166.2	4.4	30.0
1,2,3-Trimethylbenzene		105.3	76.3	124.2	2.6	30.0
n-Butylbenzene		108.3	80.0	133.3	0.5	30.0
Hexachloroethane		96.7	23.8	138.1	3.2	30.0
1,2-Dibromo-3-chloropropane		101.0	21.2	189.4	10.7	30.0
1,2,4-Trichlorobenzene		97.7	27.4	143.4	4.5	30.0
1,2,3-Trichlorobenzene		98.3	75.4	131.4	5.5	30.0
Naphthalene		103.6	32.9	135.8	6.4	30.0
2-Methylnaphthalene		96.8	25.5	165.5	7.1	30.0

Matrix Spike (MS)

Lab Sample ID: 240821A11.6531503M, Parent Sample ID: S65315.02

Run in Batch: 240821A11, Run Date: 08/21/2024 21:21, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Diethyl ether		104.1	67.4	121.2
Acetone		106.2	29.9	161.5
Methyl iodide	*	117.3	68.8	116.4
Carbon disulfide		106.5	63.8	137.4
tert-Methyl butyl ether (MTBE)		106.9	73.2	122.4
Acrylonitrile		107.2	69.9	128.9
2-Butanone (MEK)		101.8	44.0	134.4
Dichlorodifluoromethane		103.8	10.0	222.8
Chloromethane		99.2	23.8	166.5
Vinyl chloride		99.6	43.5	149.1
Bromomethane		144.6	56.8	151.3
Chloroethane		128.2	53.4	149.4
Trichlorofluoromethane		107.7	59.7	151.8
1,1-Dichloroethene		109.8	69.6	139.4

Organics - Volatiles, Prep Batch ID: VF240821W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Matrix Spike (MS) (continued)

Lab Sample ID: 240821A11.6531503M, Parent Sample ID: S65315.02

Run in Batch: 240821A11, Run Date: 08/21/2024 21:21, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Methylene chloride		103.9	73.3	121.1
trans-1,2-Dichloroethene		111.0	73.6	129.3
1,1-Dichloroethane	*	53.9	71.5	126.2
cis-1,2-Dichloroethene		108.8	76.6	122.1
Tetrahydrofuran		112.4	59.0	117.9
Chloroform		113.7	78.4	124.0
Bromochloromethane		110.0	78.2	120.8
1,1,1-Trichloroethane		111.0	79.4	130.9
4-Methyl-2-pentanone (MIBK)		93.5	71.6	125.2
2-Hexanone		103.4	55.4	136.9
Carbon tetrachloride		106.0	72.6	133.0
Benzene		105.1	79.9	124.9
1,2-Dichloroethane		108.8	76.0	126.3
Trichloroethene		103.5	79.7	124.2
1,2-Dichloropropane		105.5	78.6	126.4
Bromodichloromethane		109.7	80.4	128.2
Dibromomethane		101.9	76.9	122.1
cis-1,3-Dichloropropene		107.6	79.8	129.9
Toluene		108.3	79.8	124.5
trans-1,3-Dichloropropene		110.1	74.0	131.3
1,1,2-Trichloroethane		107.6	78.7	123.1
Tetrachloroethene		100.5	74.5	124.5
trans-1,4-Dichloro-2-butene		104.9	68.6	135.4
Dibromochloromethane		102.7	74.6	127.2
1,2-Dibromoethane		102.0	70.3	133.7
Chlorobenzene		103.0	79.2	122.7
1,1,1,2-Tetrachloroethane		102.4	80.3	128.2
Ethylbenzene		108.4	79.5	129.1
p,m-Xylene		109.4	79.4	132.2
o-Xylene		111.9	80.2	131.0
Styrene		110.6	69.5	126.7
Isopropylbenzene		110.6	74.4	121.5
Bromoform		100.7	69.4	128.0
1,1,2,2-Tetrachloroethane		108.3	79.8	126.3
1,2,3-Trichloropropane		105.6	78.3	138.8
n-Propylbenzene		106.0	82.0	130.7
Bromobenzene		101.3	78.7	124.6
1,3,5-Trimethylbenzene		110.3	81.3	128.9
tert-Butylbenzene		115.3	80.7	128.9
1,2,4-Trimethylbenzene		112.9	81.4	130.8
sec-Butylbenzene		111.4	77.4	129.8
p-Isopropyltoluene		112.1	79.8	137.5
1,3-Dichlorobenzene		105.4	77.0	131.3
1,4-Dichlorobenzene		103.2	20.7	137.7
1,2-Dichlorobenzene		105.1	10.0	166.2
1,2,3-Trimethylbenzene		107.9	76.3	124.2

Organics - Volatiles, Prep Batch ID: VF240821W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Matrix Spike (MS) (continued)

Lab Sample ID: 240821A11.6531503M, Parent Sample ID: S65315.02

Run in Batch: 240821A11, Run Date: 08/21/2024 21:21, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
n-Butylbenzene		114.5	80.0	133.3
Hexachloroethane		98.5	23.8	138.1
1,2-Dibromo-3-chloropropane		101.5	21.2	189.4
1,2,4-Trichlorobenzene		99.2	27.4	143.4
1,2,3-Trichlorobenzene		100.3	75.4	131.4
Naphthalene		105.4	32.9	135.8
2-Methylnaphthalene		97.0	25.5	165.5

Matrix Spike Duplicate (MSD)

Lab Sample ID: 240821A11.6531504N, Parent Sample ID: 240821A11.6531503M

Run in Batch: 240821A11, Run Date: 08/21/2024 21:44, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Diethyl ether		103.8	67.4	121.2	0.3	30.0
Acetone		103.5	29.9	161.5	2.5	30.0
Methyl iodide	*	123.3	68.8	116.4	5.0	30.0
Carbon disulfide		102.6	63.8	137.4	3.7	30.0
tert-Methyl butyl ether (MTBE)		106.4	73.2	122.4	0.5	30.0
Acrylonitrile		103.6	69.9	128.9	3.5	30.0
2-Butanone (MEK)		98.8	44.0	134.4	2.9	30.0
Dichlorodifluoromethane		105.6	10.0	222.8	1.7	30.0
Chloromethane		97.6	23.8	166.5	1.6	30.0
Vinyl chloride		96.3	43.5	149.1	3.3	30.0
Bromomethane	*	152.7	56.8	151.3	5.4	30.0
Chloroethane		119.1	53.4	149.4	7.4	30.0
Trichlorofluoromethane		103.5	59.7	151.8	4.0	30.0
1,1-Dichloroethene		105.5	69.6	139.4	3.8	30.0
Methylene chloride		101.2	73.3	121.1	2.7	30.0
trans-1,2-Dichloroethene		106.5	73.6	129.3	4.1	30.0
1,1-Dichloroethane	*	44.4	71.5	126.2	3.7	30.0
cis-1,2-Dichloroethene		106.3	76.6	122.1	2.3	30.0
Tetrahydrofuran		108.0	59.0	117.9	4.0	30.0
Chloroform		111.3	78.4	124.0	2.2	30.0
Bromochloromethane		108.1	78.2	120.8	1.8	30.0
1,1,1-Trichloroethane		108.5	79.4	130.9	2.3	30.0
4-Methyl-2-pentanone (MIBK)		92.0	71.6	125.2	1.5	30.0
2-Hexanone		101.3	55.4	136.9	2.0	30.0
Carbon tetrachloride		104.5	72.6	133.0	1.5	30.0
Benzene		102.7	79.9	124.9	2.3	30.0
1,2-Dichloroethane		107.8	76.0	126.3	1.0	30.0
Trichloroethene		101.2	79.7	124.2	2.3	30.0
1,2-Dichloropropane		103.9	78.6	126.4	1.6	30.0
Bromodichloromethane		107.8	80.4	128.2	1.7	30.0
Dibromomethane		101.5	76.9	122.1	0.4	30.0
cis-1,3-Dichloropropene		104.3	79.8	129.9	3.0	30.0
Toluene		106.6	79.8	124.5	1.6	30.0
trans-1,3-Dichloropropene		107.1	74.0	131.3	2.8	30.0

Organics - Volatiles, Prep Batch ID: VF240821W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Matrix Spike Duplicate (MSD) (continued)

Lab Sample ID: 240821A11.6531504N, Parent Sample ID: 240821A11.6531503M

Run in Batch: 240821A11, Run Date: 08/21/2024 21:44, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,1,2-Trichloroethane		105.6	78.7	123.1	1.9	30.0
Tetrachloroethene		96.1	74.5	124.5	4.5	30.0
trans-1,4-Dichloro-2-butene	*	70.5	68.6	135.4	39.3	30.0
Dibromochloromethane		100.1	74.6	127.2	2.5	30.0
1,2-Dibromoethane		102.1	70.3	133.7	0.1	30.0
Chlorobenzene		101.2	79.2	122.7	1.8	30.0
1,1,1,2-Tetrachloroethane		101.9	80.3	128.2	0.5	30.0
Ethylbenzene		106.3	79.5	129.1	1.9	30.0
p,m-Xylene		106.8	79.4	132.2	2.5	30.0
o-Xylene		110.0	80.2	131.0	1.7	30.0
Styrene		109.0	69.5	126.7	1.5	30.0
Isopropylbenzene		108.7	74.4	121.5	1.8	30.0
Bromoform		92.3	69.4	128.0	8.7	30.0
1,1,2,2-Tetrachloroethane		105.6	79.8	126.3	2.5	30.0
1,2,3-Trichloropropane		105.3	78.3	138.8	0.3	30.0
n-Propylbenzene		110.5	82.0	130.7	4.2	30.0
Bromobenzene		100.3	78.7	124.6	1.0	30.0
1,3,5-Trimethylbenzene		107.6	81.3	128.9	2.4	30.0
tert-Butylbenzene		112.3	80.7	128.9	2.7	30.0
1,2,4-Trimethylbenzene		109.6	81.4	130.8	3.0	30.0
sec-Butylbenzene		107.5	77.4	129.8	3.6	30.0
p-Isopropyltoluene		109.6	79.8	137.5	2.3	30.0
1,3-Dichlorobenzene		103.7	77.0	131.3	1.5	30.0
1,4-Dichlorobenzene		101.2	20.7	137.7	2.0	30.0
1,2-Dichlorobenzene		103.1	10.0	166.2	1.9	30.0
1,2,3-Trimethylbenzene		106.1	76.3	124.2	1.7	30.0
n-Butylbenzene		109.6	80.0	133.3	4.4	30.0
Hexachloroethane		96.2	23.8	138.1	2.4	30.0
1,2-Dibromo-3-chloropropane		97.8	21.2	189.4	3.8	30.0
1,2,4-Trichlorobenzene		96.9	27.4	143.4	2.3	30.0
1,2,3-Trichlorobenzene		96.9	75.4	131.4	3.4	30.0
Naphthalene		103.6	32.9	135.8	1.7	30.0
2-Methylnaphthalene		96.7	25.5	165.5	0.2	30.0

Organics - Volatiles, Prep Batch ID: VS240821W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 240821A9.BLKW21A

Run in Batch: 240821A9, Run Date: 08/21/2024 14:33, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
1,4-Dioxane	*	0.4286	0.02	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 240821A9.LCSW21A

Run in Batch: 240821A9, Run Date: 08/21/2024 12:52, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		107.7	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240821A9.LCSDW21A, Parent Sample ID: 240821A9.LCSW21A

Run in Batch: 240821A9, Run Date: 08/21/2024 13:17, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		106.6	70.0	130.0	1.0	30.0

Matrix Spike (MS)

Lab Sample ID: 240821A9.6531507M, Parent Sample ID: S65315.06

Run in Batch: 240821A9, Run Date: 08/21/2024 18:45, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		75.1	70.0	130.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 240821A9.6531508N, Parent Sample ID: 240821A9.6531507M

Run in Batch: 240821A9, Run Date: 08/21/2024 19:10, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane	*	63.8	70.0	130.0	7.3	30.0

Merit Laboratories Login Checklist

Lab Set ID: S65315
Client: ARCADIS_NOVI (ARCADIS U.S., Inc.)
Project: 30214036 / RACER Lansing
Submitted: 08/20/2024 13:30 Login User: MMC

Attention: Kaitlyn Hunt
Address: Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Selection				Description	Note
Sample Receiving					
01.	☐ Yes	☒ No	☐ N/A	Samples are received at 4C +/- 2C Thermometer #	IR 7.4
02.	☒ Yes	☐ No	☐ N/A	Received on ice/ cooling process begun	
03.	☐ Yes	☒ No	☐ N/A	Samples shipped	
04.	☐ Yes	☒ No	☐ N/A	Samples left in 24 hr. drop box	
05.	☐ Yes	☐ No	☒ N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	☒ Yes	☐ No	☐ N/A	COC adequately filled out	
07.	☒ Yes	☐ No	☐ N/A	COC signed and relinquished to the lab	
08.	☒ Yes	☐ No	☐ N/A	Sample tag on bottles match COC	
09.	☐ Yes	☒ No	☐ N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	☒ Yes	☐ No	☐ N/A	Do sample have correct chemical preservation	
11.	☐ Yes	☐ No	☒ N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	☐ Yes	☒ No	☐ N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	☒ Yes	☐ No	☐ N/A	All bottles intact	
14.	☒ Yes	☐ No	☐ N/A	Appropriate analytical bottles are used	
15.	☒ Yes	☐ No	☐ N/A	Merit bottles used	
16.	☒ Yes	☐ No	☐ N/A	Sufficient sample volume received	
17.	☐ Yes	☒ No	☐ N/A	Samples require laboratory filtration	
18.	☒ Yes	☐ No	☐ N/A	Samples submitted within holding time	
19.	☐ Yes	☒ No	☐ N/A	Do water VOC, TOX, DO or Alkalinity bottles contain	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories, Inc.

2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

172117

CHAIN OF CUSTODY RECORD

PLANT 2

REPORT TO

CONTACT NAME: KAITLYN HUNT
COMPANY: ARCADIS
ADDRESS: 28550 CABOT DR SUITE 500
CITY: NOVI STATE: MI ZIP CODE: 48377
PHONE NO.: 947-777-5215 CELL NO.: 947-777-5215 P.O. NO.: 30214036
E-MAIL ADDRESS: KAITLYN.HUNT@ARCADIS.COM QUOTE NO.:

INVOICE TO

CONTACT NAME ☐ SAME
COMPANY
ADDRESS
CITY STATE ZIP CODE
PHONE NO. E-MAIL ADDRESS

PROJECT NO./NAME: 30214036 / RACER Lansing
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Brian J. Coen
TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER
DELIVERABLES REQUIRED ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☐ EDD ☐ OTHER

MATRIX CODE: W=WATER GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR WS=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES
Project Locations
☐ Detroit ☐ New York
☒ Other MI
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	COLLECTION DATE	COLLECTION TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	8260B (VOCs) SIMS	8260B SIMS 1,4 D	MSMSD
65315.01	8/19/24	1130	MW-22-156_081924	GW	3		3						3		
.02/.03/.04	8/19/24	1230	MW-22-153_081924	GW	9		9						9		MSMSD
.05	8/19/24	1320	MW-22-155_081924	GW	3		3							3	
.06/.07/.08	8/19/24	1415	MW-23-161_081924	GW	9		9							9	MSMSD
.09	8/19/24	1520	MW-23-162_081924	GW	3		3							3	
.10	8/19/24	1610	MW-23-163_081924	GW	3		3							3	
.11	8/19/24	1725	MW-22-157_081924	GW	3		3						3		
.12	8/19/24	—	Trip Blank	GW	1		1						1		

RELINQUISHED BY: SIGNATURE/ORGANIZATION: Arcadis ☐ Sampler DATE: 8/20/24 TIME: 1330
RECEIVED BY: SIGNATURE/ORGANIZATION: Merit Drop Box DATE: 8/20/24 TIME: 1330
RELINQUISHED BY: SIGNATURE/ORGANIZATION: DATE: TIME:
RECEIVED BY: SIGNATURE/ORGANIZATION: DATE: TIME:

RELINQUISHED BY: SIGNATURE/ORGANIZATION: Merit Drop Box DATE: 8/20/24 TIME: 1330
RECEIVED BY: SIGNATURE/ORGANIZATION: M Militello DATE: 8/20/24 TIME: 1330

SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS
SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS

NOTES: TEMP. ON ARRIVAL 7.4

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 05/24

Analytical Laboratory Report

Report ID: S65316.01(01)+QC01
Generated on 08/22/2024

Report to

Attention: Kaitlyn Hunt
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 C:947-777-5215 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Addtional Contacts: Marina Samp, Tiffany Linder

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S65316.01-S65316.05
Project: 30214036.00102 / RACER Lansing
Collected Date(s): 08/19/2024
Submitted Date/Time: 08/20/2024 13:30
Sampled by: Austin Westhuis
P.O. #: 30214036.00102

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Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Starred (*) analytes are not NY NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.
Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.
All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.
For a specific list of accredited analytes, please feel free to contact the laboratory or visit https://www.meritlabs.com/certifications.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
o	Associated EIS outside of control limits
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
q	Qualifier ion ratio outside of control limits
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
N/A	Not Applicable
SW5030C/8260C	SW 846 Method 8260C Revision 3 August 2006 / 5030C Revision 3 May 2003

Analytical Laboratory Report

Sample Summary (5 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S65316.01	MW-20-132_081924	Groundwater	08/19/24 12:20
S65316.02	MW-20-131_081924	Groundwater	08/19/24 13:20
S65316.03	MW-22-154_081924	Groundwater	08/19/24 14:35
S65316.04	DUP-02_081924	Groundwater	08/19/24 00:01
S65316.05	Trip Blank	Water	08/19/24 00:01

Lab Sample ID: S65316.01
Sample Tag: MW-20-132_081924
Collected Date/Time: 08/19/2024 12:20
Matrix: Groundwater
COC Reference: 172110

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	7.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	08/22/24 10:55	NDK	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 08/21/24 15:55, Analyst: ACK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	2	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	7	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	

Lab Sample ID: S65316.01 (continued)
Sample Tag: MW-20-132_081924

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 08/21/24 15:55, Analyst: ACK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Lab Sample ID: S65316.02
Sample Tag: MW-20-131_081924
Collected Date/Time: 08/19/2024 13:20
Matrix: Groundwater
COC Reference: 172110

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	7.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	08/22/24 10:55	NDK	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 08/21/24 16:18, Analyst: ACK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	2	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	3	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	

Lab Sample ID: S65316.02 (continued)
Sample Tag: MW-20-131_081924

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 08/21/24 16:18, Analyst: ACK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Lab Sample ID: S65316.03
Sample Tag: MW-22-154_081924
Collected Date/Time: 08/19/2024 14:35
Matrix: Groundwater
COC Reference: 172110

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	7.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	08/22/24 10:55	NDK	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 08/21/24 16:41, Analyst: ACK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	2	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	4	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	

Lab Sample ID: S65316.03 (continued)
Sample Tag: MW-22-154_081924

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 08/21/24 16:41, Analyst: ACK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Lab Sample ID: S65316.04
Sample Tag: DUP-02_081924
Collected Date/Time: 08/19/2024 00:01
Matrix: Groundwater
COC Reference: 172110

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	7.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	08/22/24 10:55	NDK	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 08/21/24 17:05, Analyst: ACK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	2	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	3	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	

Lab Sample ID: S65316.04 (continued)
Sample Tag: DUP-02_081924

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 08/21/24 17:05, Analyst: ACK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Lab Sample ID: S65316.05
Sample Tag: Trip Blank
Collected Date/Time: 08/19/2024 00:01
Matrix: Water
COC Reference: 172110

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40mL Glass	HCL	Yes	7.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	08/22/24 10:55	NDK	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 08/21/24 14:22, Analyst: ACK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	

Lab Sample ID: S65316.05 (continued)
Sample Tag: Trip Blank

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 08/21/24 14:22, Analyst: ACK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Quality Control Report

Report ID: S65316.01(01)+QC01
Generated on 08/22/2024

Report to

Attention: Kaitlyn Hunt
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 C:947-777-5215 FAX:

Report Produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S65316.01-S65316.05
Project: 30214036.00102 / RACER Lansing
Submitted Date/Time: 08/20/2024 13:30
Sampled by: Austin Westhuis
P.O. #: 30214036.00102

QC Report Sections

Cover Page (Page 16)
Analysis Summary (Pages 17-21)
Prep Batch Summary (Page 22)
Surrogates per Lab Sample (Pages 23-27)
Surrogates per QC Sample (Page 28)
Internal Standards per Lab Sample (Pages 29-33)
Internal Standards per QC Sample (Page 34)
Batch QC Results (Pages 35-42)

Report Flag Descriptions

*: QC result is outside of indicated control limits
W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.

Barbara Ball
Quality Assurance Manager

QC Report - Analysis Summary

Lab Sample ID: S65316.01
Sample Tag: MW-20-132_081924
Collected Date/Time: 08/19/2024 12:20
Matrix: Groundwater
COC Reference: 172110

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	08/21/24 15:55	240821A11	VF240821W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S65316.02
Sample Tag: MW-20-131_081924
Collected Date/Time: 08/19/2024 13:20
Matrix: Groundwater
COC Reference: 172110

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	08/21/24 16:18	240821A11	VF240821W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S65316.03
Sample Tag: MW-22-154_081924
Collected Date/Time: 08/19/2024 14:35
Matrix: Groundwater
COC Reference: 172110

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	08/21/24 16:41	240821A11	VF240821W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S65316.04
Sample Tag: DUP-02_081924
Collected Date/Time: 08/19/2024 00:01
Matrix: Groundwater
COC Reference: 172110

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	08/21/24 17:05	240821A11	VF240821W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S65316.05

Sample Tag: Trip Blank

Collected Date/Time: 08/19/2024 00:01

Matrix: Water

COC Reference: 172110

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	08/21/24 14:22	240821A11	VF240821W1	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Prep Batch Summary

Organics - Volatiles, Prep Batch ID: VF240821W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S65316.01	Volatile Organics - DEQ List	SW5030C/8260C	08/21/24 15:55	240821A11
S65316.02	Volatile Organics - DEQ List	SW5030C/8260C	08/21/24 16:18	240821A11
S65316.03	Volatile Organics - DEQ List	SW5030C/8260C	08/21/24 16:41	240821A11
S65316.04	Volatile Organics - DEQ List	SW5030C/8260C	08/21/24 17:05	240821A11
S65316.05	Volatile Organics - DEQ List	SW5030C/8260C	08/21/24 14:22	240821A11

QC Report - Surrogates per Lab Sample

Lab Sample ID: S65316.01

Sample Tag: MW-20-132_081924

Collected Date/Time: 08/19/2024 12:20

Matrix: Groundwater

COC Reference: 172110

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240821A11, Run Date: 08/21/2024 15:55, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**91.6**	80.0	124.0
1,2-Dichloroethane-D4		**114.5**	72.0	125.0
Toluene-D8		**102.4**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S65316.02

Sample Tag: MW-20-131_081924

Collected Date/Time: 08/19/2024 13:20

Matrix: Groundwater

COC Reference: 172110

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240821A11, Run Date: 08/21/2024 16:18, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**91.9**	80.0	124.0
1,2-Dichloroethane-D4		**117.2**	72.0	125.0
Toluene-D8		**101.7**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S65316.03

Sample Tag: MW-22-154_081924

Collected Date/Time: 08/19/2024 14:35

Matrix: Groundwater

COC Reference: 172110

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240821A11, Run Date: 08/21/2024 16:41, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**91.5**	80.0	124.0
1,2-Dichloroethane-D4		**115.7**	72.0	125.0
Toluene-D8		**102.4**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S65316.04

Sample Tag: DUP-02_081924

Collected Date/Time: 08/19/2024 00:01

Matrix: Groundwater

COC Reference: 172110

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240821A11, Run Date: 08/21/2024 17:05, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**91.5**	80.0	124.0
1,2-Dichloroethane-D4		**118.4**	72.0	125.0
Toluene-D8		**102.1**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S65316.05

Sample Tag: Trip Blank

Collected Date/Time: 08/19/2024 00:01

Matrix: Water

COC Reference: 172110

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240821A11, Run Date: 08/21/2024 14:22, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**90.3**	80.0	124.0
1,2-Dichloroethane-D4		**110.7**	72.0	125.0
Toluene-D8		**101.7**	89.0	112.0

QC Report - Surrogates per QC Sample

Organics - Volatiles, Prep Batch ID: VF240821W1

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 240821A11.BLKW21A

Run in Batch: 240821A11, Run Date: 08/21/2024 13:35, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**92.2**	80.0	124.0
1,2-Dichloroethane-D4		**116.6**	72.0	125.0
Toluene-D8		**102.8**	89.0	112.0

Laboratory Control Sample (LCS)

Lab Sample ID: 240821A11.LCSW21A

Run in Batch: 240821A11, Run Date: 08/21/2024 12:03, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**97.9**	80.0	124.0
1,2-Dichloroethane-D4		**109.1**	72.0	125.0
Toluene-D8		**102.3**	89.0	112.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240821A11.LCSDW21A, Parent Sample ID: 240821A11.LCSW21A

Run in Batch: 240821A11, Run Date: 08/21/2024 12:26, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**96.1**	80.0	124.0
1,2-Dichloroethane-D4		**108.7**	72.0	125.0
Toluene-D8		**101.2**	89.0	112.0

Matrix Spike (MS)

Lab Sample ID: 240821A11.6531503M, Parent Sample ID: S65315.02

Run in Batch: 240821A11, Run Date: 08/21/2024 21:21, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**97.7**	80.0	124.0
1,2-Dichloroethane-D4		**111.0**	72.0	125.0
Toluene-D8		**103.4**	89.0	112.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 240821A11.6531504N, Parent Sample ID: 240821A11.6531503M

Run in Batch: 240821A11, Run Date: 08/21/2024 21:44, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**98.1**	80.0	124.0
1,2-Dichloroethane-D4		**110.6**	72.0	125.0
Toluene-D8		**103.1**	89.0	112.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S65316.01

Sample Tag: MW-20-132_081924

Collected Date/Time: 08/19/2024 12:20

Matrix: Groundwater

COC Reference: 172110

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240821A11, Run Date: 08/21/2024 15:55, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**93.2**	50.0	200.0
1,4-Difluorobenzene		**95.9**	50.0	200.0
Chlorobenzene-D5		**95.2**	50.0	200.0
1,4-Dichlorobenzene-D4		**80.9**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S65316.02

Sample Tag: MW-20-131_081924

Collected Date/Time: 08/19/2024 13:20

Matrix: Groundwater

COC Reference: 172110

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240821A11, Run Date: 08/21/2024 16:18, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**89.6**	50.0	200.0
1,4-Difluorobenzene		**91.2**	50.0	200.0
Chlorobenzene-D5		**90.8**	50.0	200.0
1,4-Dichlorobenzene-D4		**77.9**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S65316.03

Sample Tag: MW-22-154_081924

Collected Date/Time: 08/19/2024 14:35

Matrix: Groundwater

COC Reference: 172110

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240821A11, Run Date: 08/21/2024 16:41, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**91.1**	50.0	200.0
1,4-Difluorobenzene		**93.7**	50.0	200.0
Chlorobenzene-D5		**92.4**	50.0	200.0
1,4-Dichlorobenzene-D4		**79.2**	50.0	200.0

Lab Sample ID: S65316.04

Sample Tag: DUP-02_081924

Collected Date/Time: 08/19/2024 00:01

Matrix: Groundwater

COC Reference: 172110

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240821A11, Run Date: 08/21/2024 17:05, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**91.0**	50.0	200.0
1,4-Difluorobenzene		**94.1**	50.0	200.0
Chlorobenzene-D5		**92.6**	50.0	200.0
1,4-Dichlorobenzene-D4		**80.1**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S65316.05

Sample Tag: Trip Blank

Collected Date/Time: 08/19/2024 00:01

Matrix: Water

COC Reference: 172110

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240821A11, Run Date: 08/21/2024 14:22, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**96.1**	50.0	200.0
1,4-Difluorobenzene		**97.0**	50.0	200.0
Chlorobenzene-D5		**95.2**	50.0	200.0
1,4-Dichlorobenzene-D4		**80.1**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VF240821W1

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 240821A11.BLKW21A

Run in Batch: 240821A11, Run Date: 08/21/2024 13:35, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**96.3**	50.0	200.0
1,4-Difluorobenzene		**97.3**	50.0	200.0
Chlorobenzene-D5		**97.8**	50.0	200.0
1,4-Dichlorobenzene-D4		**84.1**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 240821A11.LCSW21A

Run in Batch: 240821A11, Run Date: 08/21/2024 12:03, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**109.7**	50.0	200.0
1,4-Difluorobenzene		**110.7**	50.0	200.0
Chlorobenzene-D5		**110.3**	50.0	200.0
1,4-Dichlorobenzene-D4		**110.2**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240821A11.LCSDW21A, Parent Sample ID: 240821A11.LCSW21A

Run in Batch: 240821A11, Run Date: 08/21/2024 12:26, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**108.3**	50.0	200.0
1,4-Difluorobenzene		**110.2**	50.0	200.0
Chlorobenzene-D5		**110.5**	50.0	200.0
1,4-Dichlorobenzene-D4		**106.2**	50.0	200.0

Matrix Spike (MS)

Lab Sample ID: 240821A11.6531503M, Parent Sample ID: S65315.02

Run in Batch: 240821A11, Run Date: 08/21/2024 21:21, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**97.2**	50.0	200.0
1,4-Difluorobenzene		**100.7**	50.0	200.0
Chlorobenzene-D5		**100.4**	50.0	200.0
1,4-Dichlorobenzene-D4		**99.3**	50.0	200.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 240821A11.6531504N, Parent Sample ID: 240821A11.6531503M

Run in Batch: 240821A11, Run Date: 08/21/2024 21:44, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**103.3**	50.0	200.0
1,4-Difluorobenzene		**105.5**	50.0	200.0
Chlorobenzene-D5		**105.1**	50.0	200.0
1,4-Dichlorobenzene-D4		**104.7**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VF240821W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 240821A11.BLKW21A

Run in Batch: 240821A11, Run Date: 08/21/2024 13:35, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Diethyl ether		ND	1.00	ug/l
Acetone		ND	10.00	ug/l
Methyl iodide		ND	1.00	ug/l
Carbon disulfide		ND	1.00	ug/l
tert-Methyl butyl ether (MTBE)		ND	1.00	ug/l
Acrylonitrile		ND	1.00	ug/l
2-Butanone (MEK)		ND	10.00	ug/l
Dichlorodifluoromethane		ND	1.00	ug/l
Chloromethane		ND	1.00	ug/l
Vinyl chloride		ND	1.00	ug/l
Bromomethane		ND	1.00	ug/l
Chloroethane		ND	1.00	ug/l
Trichlorofluoromethane		ND	1.00	ug/l
1,1-Dichloroethene		ND	1.00	ug/l
Methylene chloride		ND	1.00	ug/l
trans-1,2-Dichloroethene		ND	1.00	ug/l
1,1-Dichloroethane		ND	1.00	ug/l
cis-1,2-Dichloroethene		ND	1.00	ug/l
Tetrahydrofuran		ND	10.00	ug/l
Chloroform		ND	1.00	ug/l
Bromochloromethane		ND	1.00	ug/l
1,1,1-Trichloroethane		ND	1.00	ug/l
4-Methyl-2-pentanone (MIBK)		ND	10.00	ug/l
2-Hexanone		ND	10.00	ug/l
Carbon tetrachloride		ND	1.00	ug/l
Benzene		ND	1.00	ug/l
1,2-Dichloroethane		ND	1.00	ug/l
Trichloroethene		ND	1.00	ug/l
1,2-Dichloropropane		ND	1.00	ug/l
Bromodichloromethane		ND	1.00	ug/l
Dibromomethane		ND	1.00	ug/l
cis-1,3-Dichloropropene		ND	1.00	ug/l
Toluene		ND	1.00	ug/l
trans-1,3-Dichloropropene		ND	1.00	ug/l
1,1,2-Trichloroethane		ND	1.00	ug/l
Tetrachloroethene		ND	1.00	ug/l
trans-1,4-Dichloro-2-butene		ND	1.00	ug/l
Dibromochloromethane		ND	1.00	ug/l
1,2-Dibromoethane		ND	1.00	ug/l
Chlorobenzene		ND	1.00	ug/l
1,1,1,2-Tetrachloroethane		ND	1.00	ug/l
Ethylbenzene		ND	1.00	ug/l
p,m-Xylene		ND	2.00	ug/l
o-Xylene		ND	1.00	ug/l
Styrene		ND	1.00	ug/l
Isopropylbenzene		ND	1.00	ug/l

Organics - Volatiles, Prep Batch ID: VF240821W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK) (continued)

Lab Sample ID: 240821A11.BLKW21A

Run in Batch: 240821A11, Run Date: 08/21/2024 13:35, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Bromoform		ND	1.00	ug/l
1,1,2,2-Tetrachloroethane		ND	1.00	ug/l
1,2,3-Trichloropropane		ND	1.00	ug/l
n-Propylbenzene		ND	1.00	ug/l
Bromobenzene		ND	1.00	ug/l
1,3,5-Trimethylbenzene		ND	1.00	ug/l
tert-Butylbenzene		ND	1.00	ug/l
1,2,4-Trimethylbenzene		ND	1.00	ug/l
sec-Butylbenzene		ND	1.00	ug/l
p-Isopropyltoluene		ND	1.00	ug/l
1,3-Dichlorobenzene		ND	1.00	ug/l
1,4-Dichlorobenzene		ND	1.00	ug/l
1,2-Dichlorobenzene		ND	1.00	ug/l
1,2,3-Trimethylbenzene		ND	1.00	ug/l
n-Butylbenzene		ND	1.00	ug/l
Hexachloroethane		ND	1.00	ug/l
1,2-Dibromo-3-chloropropane		ND	1.00	ug/l
1,2,4-Trichlorobenzene		ND	1.00	ug/l
1,2,3-Trichlorobenzene		ND	1.00	ug/l
Naphthalene		ND	1.00	ug/l
2-Methylnaphthalene		ND	1.00	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 240821A11.LCSW21A

Run in Batch: 240821A11, Run Date: 08/21/2024 12:03, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Diethyl ether		95.6	67.4	121.2
Acetone		92.7	29.9	161.5
Methyl iodide	*	131.2	68.8	116.4
Carbon disulfide		100.6	63.8	137.4
tert-Methyl butyl ether (MTBE)		99.0	73.2	122.4
Acrylonitrile		96.0	69.9	128.9
2-Butanone (MEK)		92.5	44.0	134.4
Dichlorodifluoromethane		104.5	10.0	222.8
Chloromethane		93.8	23.8	166.5
Vinyl chloride		92.7	43.5	149.1
Bromomethane		147.9	56.8	151.3
Chloroethane		111.1	53.4	149.4
Trichlorofluoromethane		97.2	59.7	151.8
1,1-Dichloroethene		100.9	69.6	139.4
Methylene chloride		97.1	73.3	121.1
trans-1,2-Dichloroethene		103.4	73.6	129.3
1,1-Dichloroethane		102.4	71.5	126.2
cis-1,2-Dichloroethene		100.8	76.6	122.1
Tetrahydrofuran		98.7	59.0	117.9
Chloroform		105.8	78.4	124.0

Organics - Volatiles, Prep Batch ID: VF240821W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 240821A11.LCSW21A

Run in Batch: 240821A11, Run Date: 08/21/2024 12:03, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Bromochloromethane		101.3	78.2	120.8
1,1,1-Trichloroethane		103.4	79.4	130.9
4-Methyl-2-pentanone (MIBK)		90.8	71.6	125.2
2-Hexanone		92.8	55.4	136.9
Carbon tetrachloride		100.3	72.6	133.0
Benzene		97.8	79.9	124.9
1,2-Dichloroethane		101.6	76.0	126.3
Trichloroethene		98.4	79.7	124.2
1,2-Dichloropropane		98.2	78.6	126.4
Bromodichloromethane		103.3	80.4	128.2
Dibromomethane		94.6	76.9	122.1
cis-1,3-Dichloropropene		105.2	79.8	129.9
Toluene		101.7	79.8	124.5
trans-1,3-Dichloropropene		106.9	74.0	131.3
1,1,2-Trichloroethane		98.3	78.7	123.1
Tetrachloroethene		93.8	74.5	124.5
trans-1,4-Dichloro-2-butene		110.0	68.6	135.4
Dibromochloromethane		97.8	74.6	127.2
1,2-Dibromoethane		95.8	70.3	133.7
Chlorobenzene		96.9	79.2	122.7
1,1,1,2-Tetrachloroethane		96.5	80.3	128.2
Ethylbenzene		101.8	79.5	129.1
p,m-Xylene		103.8	79.4	132.2
o-Xylene		105.5	80.2	131.0
Styrene		105.8	69.5	126.7
Isopropylbenzene		104.4	74.4	121.5
Bromoform		96.5	69.4	128.0
1,1,2,2-Tetrachloroethane		100.0	79.8	126.3
1,2,3-Trichloropropane		96.8	78.3	138.8
n-Propylbenzene		100.5	82.0	130.7
Bromobenzene		96.4	78.7	124.6
1,3,5-Trimethylbenzene		104.4	81.3	128.9
tert-Butylbenzene		108.4	80.7	128.9
1,2,4-Trimethylbenzene		106.7	81.4	130.8
sec-Butylbenzene		105.1	77.4	129.8
p-Isopropyltoluene		106.4	79.8	137.5
1,3-Dichlorobenzene		99.5	77.0	131.3
1,4-Dichlorobenzene		98.1	20.7	137.7
1,2-Dichlorobenzene		98.6	10.0	166.2
1,2,3-Trimethylbenzene		102.6	76.3	124.2
n-Butylbenzene		107.8	80.0	133.3
Hexachloroethane		93.7	23.8	138.1
1,2-Dibromo-3-chloropropane		90.7	21.2	189.4
1,2,4-Trichlorobenzene		93.5	27.4	143.4
1,2,3-Trichlorobenzene		93.1	75.4	131.4
Naphthalene		97.2	32.9	135.8

Organics - Volatiles, Prep Batch ID: VF240821W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 240821A11.LCSW21A

Run in Batch: 240821A11, Run Date: 08/21/2024 12:03, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
2-Methylnaphthalene		90.1	25.5	165.5

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240821A11.LCSDW21A, Parent Sample ID: 240821A11.LCSW21A

Run in Batch: 240821A11, Run Date: 08/21/2024 12:26, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Diethyl ether		101.2	67.4	121.2	5.8	30.0
Acetone		101.6	29.9	161.5	9.2	30.0
Methyl iodide	*	127.4	68.8	116.4	3.0	30.0
Carbon disulfide		98.5	63.8	137.4	2.2	30.0
tert-Methyl butyl ether (MTBE)		103.3	73.2	122.4	4.3	30.0
Acrylonitrile		100.8	69.9	128.9	4.9	30.0
2-Butanone (MEK)		109.0	44.0	134.4	16.4	30.0
Dichlorodifluoromethane		104.6	10.0	222.8	0.1	30.0
Chloromethane		95.5	23.8	166.5	1.7	30.0
Vinyl chloride		90.3	43.5	149.1	2.7	30.0
Bromomethane	*	152.5	56.8	151.3	3.1	30.0
Chloroethane		109.2	53.4	149.4	1.7	30.0
Trichlorofluoromethane		97.1	59.7	151.8	0.1	30.0
1,1-Dichloroethene		100.2	69.6	139.4	0.8	30.0
Methylene chloride		98.2	73.3	121.1	1.2	30.0
trans-1,2-Dichloroethene		101.4	73.6	129.3	2.0	30.0
1,1-Dichloroethane		102.1	71.5	126.2	0.2	30.0
cis-1,2-Dichloroethene		101.0	76.6	122.1	0.2	30.0
Tetrahydrofuran		106.8	59.0	117.9	7.9	30.0
Chloroform		107.2	78.4	124.0	1.3	30.0
Bromochloromethane		103.3	78.2	120.8	1.9	30.0
1,1,1-Trichloroethane		102.7	79.4	130.9	0.7	30.0
4-Methyl-2-pentanone (MIBK)		103.9	71.6	125.2	13.5	30.0
2-Hexanone		97.8	55.4	136.9	5.2	30.0
Carbon tetrachloride		98.2	72.6	133.0	2.1	30.0
Benzene		97.5	79.9	124.9	0.3	30.0
1,2-Dichloroethane		103.3	76.0	126.3	1.6	30.0
Trichloroethene		96.2	79.7	124.2	2.3	30.0
1,2-Dichloropropane		99.7	78.6	126.4	1.5	30.0
Bromodichloromethane		105.3	80.4	128.2	1.9	30.0
Dibromomethane		97.6	76.9	122.1	3.1	30.0
cis-1,3-Dichloropropene		105.3	79.8	129.9	0.1	30.0
Toluene		101.6	79.8	124.5	0.1	30.0
trans-1,3-Dichloropropene		110.6	74.0	131.3	3.3	30.0
1,1,2-Trichloroethane		101.8	78.7	123.1	3.5	30.0
Tetrachloroethene		92.3	74.5	124.5	1.5	30.0
trans-1,4-Dichloro-2-butene		112.7	68.6	135.4	2.4	30.0
Dibromochloromethane		99.7	74.6	127.2	1.9	30.0
1,2-Dibromoethane		99.1	70.3	133.7	3.4	30.0
Chlorobenzene		96.3	79.2	122.7	0.7	30.0

Organics - Volatiles, Prep Batch ID: VF240821W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: 240821A11.LCSDW21A, Parent Sample ID: 240821A11.LCSW21A

Run in Batch: 240821A11, Run Date: 08/21/2024 12:26, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,1,1,2-Tetrachloroethane		97.6	80.3	128.2	1.1	30.0
Ethylbenzene		100.3	79.5	129.1	1.5	30.0
p,m-Xylene		102.0	79.4	132.2	1.8	30.0
o-Xylene		104.2	80.2	131.0	1.2	30.0
Styrene		105.2	69.5	126.7	0.6	30.0
Isopropylbenzene		102.7	74.4	121.5	1.6	30.0
Bromoform		99.8	69.4	128.0	3.4	30.0
1,1,2,2-Tetrachloroethane		103.2	79.8	126.3	3.2	30.0
1,2,3-Trichloropropane		101.6	78.3	138.8	4.8	30.0
n-Propylbenzene		103.5	82.0	130.7	3.0	30.0
Bromobenzene		97.1	78.7	124.6	0.8	30.0
1,3,5-Trimethylbenzene		102.4	81.3	128.9	1.9	30.0
tert-Butylbenzene		106.0	80.7	128.9	2.2	30.0
1,2,4-Trimethylbenzene		105.1	81.4	130.8	1.5	30.0
sec-Butylbenzene		105.6	77.4	129.8	0.5	30.0
p-Isopropyltoluene		106.5	79.8	137.5	0.1	30.0
1,3-Dichlorobenzene		102.8	77.0	131.3	3.3	30.0
1,4-Dichlorobenzene		101.7	20.7	137.7	3.5	30.0
1,2-Dichlorobenzene		103.0	10.0	166.2	4.4	30.0
1,2,3-Trimethylbenzene		105.3	76.3	124.2	2.6	30.0
n-Butylbenzene		108.3	80.0	133.3	0.5	30.0
Hexachloroethane		96.7	23.8	138.1	3.2	30.0
1,2-Dibromo-3-chloropropane		101.0	21.2	189.4	10.7	30.0
1,2,4-Trichlorobenzene		97.7	27.4	143.4	4.5	30.0
1,2,3-Trichlorobenzene		98.3	75.4	131.4	5.5	30.0
Naphthalene		103.6	32.9	135.8	6.4	30.0
2-Methylnaphthalene		96.8	25.5	165.5	7.1	30.0

Matrix Spike (MS)

Lab Sample ID: 240821A11.6531503M, Parent Sample ID: S65315.02

Run in Batch: 240821A11, Run Date: 08/21/2024 21:21, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Diethyl ether		104.1	67.4	121.2
Acetone		106.2	29.9	161.5
Methyl iodide	*	117.3	68.8	116.4
Carbon disulfide		106.5	63.8	137.4
tert-Methyl butyl ether (MTBE)		106.9	73.2	122.4
Acrylonitrile		107.2	69.9	128.9
2-Butanone (MEK)		101.8	44.0	134.4
Dichlorodifluoromethane		103.8	10.0	222.8
Chloromethane		99.2	23.8	166.5
Vinyl chloride		99.6	43.5	149.1
Bromomethane		144.6	56.8	151.3
Chloroethane		128.2	53.4	149.4
Trichlorofluoromethane		107.7	59.7	151.8
1,1-Dichloroethene		109.8	69.6	139.4

Organics - Volatiles, Prep Batch ID: VF240821W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Matrix Spike (MS) (continued)

Lab Sample ID: 240821A11.6531503M, Parent Sample ID: S65315.02

Run in Batch: 240821A11, Run Date: 08/21/2024 21:21, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Methylene chloride		103.9	73.3	121.1
trans-1,2-Dichloroethene		111.0	73.6	129.3
1,1-Dichloroethane	*	53.9	71.5	126.2
cis-1,2-Dichloroethene		108.8	76.6	122.1
Tetrahydrofuran		112.4	59.0	117.9
Chloroform		113.7	78.4	124.0
Bromochloromethane		110.0	78.2	120.8
1,1,1-Trichloroethane		111.0	79.4	130.9
4-Methyl-2-pentanone (MIBK)		93.5	71.6	125.2
2-Hexanone		103.4	55.4	136.9
Carbon tetrachloride		106.0	72.6	133.0
Benzene		105.1	79.9	124.9
1,2-Dichloroethane		108.8	76.0	126.3
Trichloroethene		103.5	79.7	124.2
1,2-Dichloropropane		105.5	78.6	126.4
Bromodichloromethane		109.7	80.4	128.2
Dibromomethane		101.9	76.9	122.1
cis-1,3-Dichloropropene		107.6	79.8	129.9
Toluene		108.3	79.8	124.5
trans-1,3-Dichloropropene		110.1	74.0	131.3
1,1,2-Trichloroethane		107.6	78.7	123.1
Tetrachloroethene		100.5	74.5	124.5
trans-1,4-Dichloro-2-butene		104.9	68.6	135.4
Dibromochloromethane		102.7	74.6	127.2
1,2-Dibromoethane		102.0	70.3	133.7
Chlorobenzene		103.0	79.2	122.7
1,1,1,2-Tetrachloroethane		102.4	80.3	128.2
Ethylbenzene		108.4	79.5	129.1
p,m-Xylene		109.4	79.4	132.2
o-Xylene		111.9	80.2	131.0
Styrene		110.6	69.5	126.7
Isopropylbenzene		110.6	74.4	121.5
Bromoform		100.7	69.4	128.0
1,1,2,2-Tetrachloroethane		108.3	79.8	126.3
1,2,3-Trichloropropane		105.6	78.3	138.8
n-Propylbenzene		106.0	82.0	130.7
Bromobenzene		101.3	78.7	124.6
1,3,5-Trimethylbenzene		110.3	81.3	128.9
tert-Butylbenzene		115.3	80.7	128.9
1,2,4-Trimethylbenzene		112.9	81.4	130.8
sec-Butylbenzene		111.4	77.4	129.8
p-Isopropyltoluene		112.1	79.8	137.5
1,3-Dichlorobenzene		105.4	77.0	131.3
1,4-Dichlorobenzene		103.2	20.7	137.7
1,2-Dichlorobenzene		105.1	10.0	166.2
1,2,3-Trimethylbenzene		107.9	76.3	124.2

Organics - Volatiles, Prep Batch ID: VF240821W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Matrix Spike (MS) (continued)

Lab Sample ID: 240821A11.6531503M, Parent Sample ID: S65315.02

Run in Batch: 240821A11, Run Date: 08/21/2024 21:21, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
n-Butylbenzene		114.5	80.0	133.3
Hexachloroethane		98.5	23.8	138.1
1,2-Dibromo-3-chloropropane		101.5	21.2	189.4
1,2,4-Trichlorobenzene		99.2	27.4	143.4
1,2,3-Trichlorobenzene		100.3	75.4	131.4
Naphthalene		105.4	32.9	135.8
2-Methylnaphthalene		97.0	25.5	165.5

Matrix Spike Duplicate (MSD)

Lab Sample ID: 240821A11.6531504N, Parent Sample ID: 240821A11.6531503M

Run in Batch: 240821A11, Run Date: 08/21/2024 21:44, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Diethyl ether		103.8	67.4	121.2	0.3	30.0
Acetone		103.5	29.9	161.5	2.5	30.0
Methyl iodide	*	123.3	68.8	116.4	5.0	30.0
Carbon disulfide		102.6	63.8	137.4	3.7	30.0
tert-Methyl butyl ether (MTBE)		106.4	73.2	122.4	0.5	30.0
Acrylonitrile		103.6	69.9	128.9	3.5	30.0
2-Butanone (MEK)		98.8	44.0	134.4	2.9	30.0
Dichlorodifluoromethane		105.6	10.0	222.8	1.7	30.0
Chloromethane		97.6	23.8	166.5	1.6	30.0
Vinyl chloride		96.3	43.5	149.1	3.3	30.0
Bromomethane	*	152.7	56.8	151.3	5.4	30.0
Chloroethane		119.1	53.4	149.4	7.4	30.0
Trichlorofluoromethane		103.5	59.7	151.8	4.0	30.0
1,1-Dichloroethene		105.5	69.6	139.4	3.8	30.0
Methylene chloride		101.2	73.3	121.1	2.7	30.0
trans-1,2-Dichloroethene		106.5	73.6	129.3	4.1	30.0
1,1-Dichloroethane	*	44.4	71.5	126.2	3.7	30.0
cis-1,2-Dichloroethene		106.3	76.6	122.1	2.3	30.0
Tetrahydrofuran		108.0	59.0	117.9	4.0	30.0
Chloroform		111.3	78.4	124.0	2.2	30.0
Bromochloromethane		108.1	78.2	120.8	1.8	30.0
1,1,1-Trichloroethane		108.5	79.4	130.9	2.3	30.0
4-Methyl-2-pentanone (MIBK)		92.0	71.6	125.2	1.5	30.0
2-Hexanone		101.3	55.4	136.9	2.0	30.0
Carbon tetrachloride		104.5	72.6	133.0	1.5	30.0
Benzene		102.7	79.9	124.9	2.3	30.0
1,2-Dichloroethane		107.8	76.0	126.3	1.0	30.0
Trichloroethene		101.2	79.7	124.2	2.3	30.0
1,2-Dichloropropane		103.9	78.6	126.4	1.6	30.0
Bromodichloromethane		107.8	80.4	128.2	1.7	30.0
Dibromomethane		101.5	76.9	122.1	0.4	30.0
cis-1,3-Dichloropropene		104.3	79.8	129.9	3.0	30.0
Toluene		106.6	79.8	124.5	1.6	30.0
trans-1,3-Dichloropropene		107.1	74.0	131.3	2.8	30.0

Organics - Volatiles, Prep Batch ID: VF240821W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Matrix Spike Duplicate (MSD) (continued)

Lab Sample ID: 240821A11.6531504N, Parent Sample ID: 240821A11.6531503M

Run in Batch: 240821A11, Run Date: 08/21/2024 21:44, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,1,2-Trichloroethane		105.6	78.7	123.1	1.9	30.0
Tetrachloroethene		96.1	74.5	124.5	4.5	30.0
trans-1,4-Dichloro-2-butene	*	70.5	68.6	135.4	39.3	30.0
Dibromochloromethane		100.1	74.6	127.2	2.5	30.0
1,2-Dibromoethane		102.1	70.3	133.7	0.1	30.0
Chlorobenzene		101.2	79.2	122.7	1.8	30.0
1,1,1,2-Tetrachloroethane		101.9	80.3	128.2	0.5	30.0
Ethylbenzene		106.3	79.5	129.1	1.9	30.0
p,m-Xylene		106.8	79.4	132.2	2.5	30.0
o-Xylene		110.0	80.2	131.0	1.7	30.0
Styrene		109.0	69.5	126.7	1.5	30.0
Isopropylbenzene		108.7	74.4	121.5	1.8	30.0
Bromoform		92.3	69.4	128.0	8.7	30.0
1,1,2,2-Tetrachloroethane		105.6	79.8	126.3	2.5	30.0
1,2,3-Trichloropropane		105.3	78.3	138.8	0.3	30.0
n-Propylbenzene		110.5	82.0	130.7	4.2	30.0
Bromobenzene		100.3	78.7	124.6	1.0	30.0
1,3,5-Trimethylbenzene		107.6	81.3	128.9	2.4	30.0
tert-Butylbenzene		112.3	80.7	128.9	2.7	30.0
1,2,4-Trimethylbenzene		109.6	81.4	130.8	3.0	30.0
sec-Butylbenzene		107.5	77.4	129.8	3.6	30.0
p-Isopropyltoluene		109.6	79.8	137.5	2.3	30.0
1,3-Dichlorobenzene		103.7	77.0	131.3	1.5	30.0
1,4-Dichlorobenzene		101.2	20.7	137.7	2.0	30.0
1,2-Dichlorobenzene		103.1	10.0	166.2	1.9	30.0
1,2,3-Trimethylbenzene		106.1	76.3	124.2	1.7	30.0
n-Butylbenzene		109.6	80.0	133.3	4.4	30.0
Hexachloroethane		96.2	23.8	138.1	2.4	30.0
1,2-Dibromo-3-chloropropane		97.8	21.2	189.4	3.8	30.0
1,2,4-Trichlorobenzene		96.9	27.4	143.4	2.3	30.0
1,2,3-Trichlorobenzene		96.9	75.4	131.4	3.4	30.0
Naphthalene		103.6	32.9	135.8	1.7	30.0
2-Methylnaphthalene		96.7	25.5	165.5	0.2	30.0

Merit Laboratories Login Checklist

Lab Set ID: S65316
Client: ARCADIS_NOVI (ARCADIS U.S., Inc.)
Project: 30214036.00102 / RACER Lansing
Submitted: 08/20/2024 13:30 Login User: MMC

Attention: Kaitlyn Hunt
Address: Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Selection				Description	Note
Sample Receiving					
01.	☐ Yes	☒ No	☐ N/A	Samples are received at 4C +/- 2C Thermometer #	IR 7.4
02.	☒ Yes	☐ No	☐ N/A	Received on ice/ cooling process begun	
03.	☐ Yes	☒ No	☐ N/A	Samples shipped	
04.	☐ Yes	☒ No	☐ N/A	Samples left in 24 hr. drop box	
05.	☐ Yes	☐ No	☒ N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	☒ Yes	☐ No	☐ N/A	COC adequately filled out	
07.	☒ Yes	☐ No	☐ N/A	COC signed and relinquished to the lab	
08.	☒ Yes	☐ No	☐ N/A	Sample tag on bottles match COC	
09.	☐ Yes	☒ No	☐ N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	☒ Yes	☐ No	☐ N/A	Do sample have correct chemical preservation	
11.	☐ Yes	☐ No	☒ N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	☐ Yes	☒ No	☐ N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	☒ Yes	☐ No	☐ N/A	All bottles intact	
14.	☒ Yes	☐ No	☐ N/A	Appropriate analytical bottles are used	
15.	☒ Yes	☐ No	☐ N/A	Merit bottles used	
16.	☒ Yes	☐ No	☐ N/A	Sufficient sample volume received	
17.	☐ Yes	☒ No	☐ N/A	Samples require laboratory filtration	
18.	☒ Yes	☐ No	☐ N/A	Samples submitted within holding time	
19.	☐ Yes	☒ No	☐ N/A	Do water VOC, TOX, DO or Alkalinity bottles contain	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories, Inc.
2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

172110

CHAIN OF CUSTODY RECORD Plant 6

REPORT TO

CONTACT NAME: Kaitlyn Hunt
COMPANY: Arcadis
ADDRESS: 28550 Cabot Drive, Suite 500
CITY: Novi STATE: MI ZIP CODE: 48377
PHONE NO.: 947-777-5215 CELL NO.: P.O. NO.:
E-MAIL ADDRESS: Kaitlyn.Hunt@arcadis.com QUOTE NO.:

INVOICE TO

CONTACT NAME: ☒ SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: E-MAIL ADDRESS:

PROJECT NO./NAME: 30214036.00102 / RACER Lansing
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Austin Westhuis / [signature]
TURNAROUND TIME REQUIRED: ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER
DELIVERABLES REQUIRED: ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☐ EDD ☐ OTHER

MATRIX CODE: W=WATER GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR WS=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES
Project Locations
☐ Detroit ☐ New York
☒ Other MI
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	COLLECTION DATE	COLLECTION TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	VOC 8260B sims
65316.01	8/19/24	1220	MW-20-132_081924	GW	3		3						X
.02	8/19/24	1320	MW-20-131_081924	GW	3		3						X
.03	8/19/24	1435	MW-22-154_081924	GW	3		3						X
.04	8/19/24	—	DUP-02_081924	GW	3		3						X
.05	8/19/24	—	Trip Blank	GW	1		1						X

RELINQUISHED BY: SIGNATURE/ORGANIZATION	[signature] / Arcadis ☒ Sampler	DATE 8/20/24	TIME 1330
RECEIVED BY: SIGNATURE/ORGANIZATION	Merit Drop Box	DATE 8/20/24	TIME 1330
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

RELINQUISHED BY: SIGNATURE/ORGANIZATION	Merit Drop BOX	DATE 8/20/24	TIME 1330
RECEIVED BY: SIGNATURE/ORGANIZATION	M Chilcote	DATE 8/20/24	TIME 1330

SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS
SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS

NOTES: TEMP. ON ARRIVAL 7.4

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Analytical Laboratory Report

Report ID: S65317.01(01)+QC01
Generated on 08/23/2024

Report to

Attention: Kaitlyn Hunt
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 C:947-777-5215 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Addtional Contacts: Marina Samp, Tiffany Linder

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S65317.01-S65317.03
Project: 30214036 / RACER Lansing
Collected Date(s): 08/19/2024 - 08/20/2024
Submitted Date/Time: 08/20/2024 13:30
Sampled by: Donald Richmond
P.O. #: 30214036.0470B

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Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Starred (*) analytes are not NY NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.
Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.
All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.
For a specific list of accredited analytes, please feel free to contact the laboratory or visit https://www.meritlabs.com/certifications.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
o	Associated EIS outside of control limits
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
q	Qualifier ion ratio outside of control limits
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
N/A	Not Applicable
SW8260B - SIM	SW 846 Method 8260B Revision 2 December 1996 SIMs

Sample Summary (3 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S65317.01	PW-14-02_081924	Groundwater	08/19/24 11:40
S65317.02	TW-14-02_082024	Groundwater	08/20/24 09:05
S65317.03	DUP-01_081924	Groundwater	08/19/24 00:01

Analytical Laboratory Report

Lab Sample ID: S65317.01
Sample Tag: PW-14-02_081924
Collected Date/Time: 08/19/2024 11:40
Matrix: Groundwater
COC Reference: 172111

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	7.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	08/22/24 10:55	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 08/21/24 16:14, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	8	1		ug/L	1	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S65317.02
Sample Tag: TW-14-02_082024
Collected Date/Time: 08/20/2024 09:05
Matrix: Groundwater
COC Reference: 172111

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	7.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	08/22/24 10:55	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 08/22/24 14:24, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	16	1		ug/L	1	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S65317.03
Sample Tag: DUP-01_081924
Collected Date/Time: 08/19/2024 00:01
Matrix: Groundwater
COC Reference: 172111

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	7.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	08/22/24 10:55	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 08/21/24 16:39, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	8	1		ug/L	1	123-91-1	

Quality Control Report

Report ID: S65317.01(01)+QC01
Generated on 08/23/2024

Report to

Attention: Kaitlyn Hunt
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 C:947-777-5215 FAX:

Report Produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S65317.01-S65317.03
Project: 30214036 / RACER Lansing
Submitted Date/Time: 08/20/2024 13:30
Sampled by: Donald Richmond
P.O. #: 30214036.0470B

QC Report Sections

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Analysis Summary (Pages 10-12)
Prep Batch Summary (Page 13)
Surrogates per QC Sample (Pages 14-15)
Internal Standards per Lab Sample (Pages 16-18)
Internal Standards per QC Sample (Pages 19-20)
Batch QC Results (Pages 21-22)

Report Flag Descriptions

*: QC result is outside of indicated control limits
W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.

Barbara Ball
Quality Assurance Manager

Lab Sample ID: S65317.01
Sample Tag: PW-14-02_081924
Collected Date/Time: 08/19/2024 11:40
Matrix: Groundwater
COC Reference: 172111

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	08/21/24 16:14	240821A9	VS240821W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S65317.02
Sample Tag: TW-14-02_082024
Collected Date/Time: 08/20/2024 09:05
Matrix: Groundwater
COC Reference: 172111

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	08/22/24 14:24	240822A9	VS240822W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S65317.03
Sample Tag: DUP-01_081924
Collected Date/Time: 08/19/2024 00:01
Matrix: Groundwater
COC Reference: 172111

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	08/21/24 16:39	240821A9	VS240821W1	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Prep Batch Summary

Organics - Volatiles, Prep Batch ID: VS240821W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S65317.01	1,4-Dioxane	SW8260B - SIM	08/21/24 16:14	240821A9
S65317.03	1,4-Dioxane	SW8260B - SIM	08/21/24 16:39	240821A9

Organics - Volatiles, Prep Batch ID: VS240822W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S65317.02	1,4-Dioxane	SW8260B - SIM	08/22/24 14:24	240822A9

Organics - Volatiles, Prep Batch ID: VS240821W1

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 240821A9.BLKW21A

Run in Batch: 240821A9, Run Date: 08/21/2024 14:33, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample (LCS)

Lab Sample ID: 240821A9.LCSW21A

Run in Batch: 240821A9, Run Date: 08/21/2024 12:52, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240821A9.LCSDW21A, Parent Sample ID: 240821A9.LCSW21A

Run in Batch: 240821A9, Run Date: 08/21/2024 13:17, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Matrix Spike (MS)

Lab Sample ID: 240821A9.6531507M, Parent Sample ID: S65315.06

Run in Batch: 240821A9, Run Date: 08/21/2024 18:45, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Matrix Spike Duplicate (MSD)

Lab Sample ID: 240821A9.6531508N, Parent Sample ID: 240821A9.6531507M

Run in Batch: 240821A9, Run Date: 08/21/2024 19:10, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

QC Report - Surrogates per QC Sample

Organics - Volatiles, Prep Batch ID: VS240822W1

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240822A9.BLKW22A

Run in Batch: 240822A9, Run Date: 08/22/2024 13:58, Prep Date: 08/22/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
No Surrogates				

Laboratory Control Sample (LCS)

Lab Sample ID: 240822A9.LCSW22A

Run in Batch: 240822A9, Run Date: 08/22/2024 12:17, Prep Date: 08/22/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
No Surrogates				

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240822A9.LCSDW22A, Parent Sample ID: 240822A9.LCSW22A

Run in Batch: 240822A9, Run Date: 08/22/2024 12:42, Prep Date: 08/22/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
No Surrogates				

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S65317.01

Sample Tag: PW-14-02_081924

Collected Date/Time: 08/19/2024 11:40

Matrix: Groundwater

COC Reference: 172111

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 240821A9, Run Date: 08/21/2024 16:14, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**107.2**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S65317.02

Sample Tag: TW-14-02_082024

Collected Date/Time: 08/20/2024 09:05

Matrix: Groundwater

COC Reference: 172111

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 240822A9, Run Date: 08/22/2024 14:24, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**138.9**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S65317.03

Sample Tag: DUP-01_081924

Collected Date/Time: 08/19/2024 00:01

Matrix: Groundwater

COC Reference: 172111

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 240821A9, Run Date: 08/21/2024 16:39, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**115.0**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VS240821W1

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 240821A9.BLKW21A

Run in Batch: 240821A9, Run Date: 08/21/2024 14:33, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**103.7**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 240821A9.LCSW21A

Run in Batch: 240821A9, Run Date: 08/21/2024 12:52, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**95.6**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240821A9.LCSDW21A, Parent Sample ID: 240821A9.LCSW21A

Run in Batch: 240821A9, Run Date: 08/21/2024 13:17, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**137.1**	50.0	200.0

Matrix Spike (MS)

Lab Sample ID: 240821A9.6531507M, Parent Sample ID: S65315.06

Run in Batch: 240821A9, Run Date: 08/21/2024 18:45, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**125.1**	50.0	200.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 240821A9.6531508N, Parent Sample ID: 240821A9.6531507M

Run in Batch: 240821A9, Run Date: 08/21/2024 19:10, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**124.8**	50.0	200.0

QC Report - Internal Standards per QC Sample

Organics - Volatiles, Prep Batch ID: VS240822W1

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240822A9.BLKW22A

Run in Batch: 240822A9, Run Date: 08/22/2024 13:58, Prep Date: 08/22/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**104.2**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 240822A9.LCSW22A

Run in Batch: 240822A9, Run Date: 08/22/2024 12:17, Prep Date: 08/22/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**112.0**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240822A9.LCSDW22A, Parent Sample ID: 240822A9.LCSW22A

Run in Batch: 240822A9, Run Date: 08/22/2024 12:42, Prep Date: 08/22/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**88.6**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VS240821W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 240821A9.BLKW21A

Run in Batch: 240821A9, Run Date: 08/21/2024 14:33, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
1,4-Dioxane		ND	1.00	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 240821A9.LCSW21A

Run in Batch: 240821A9, Run Date: 08/21/2024 12:52, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		107.7	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240821A9.LCSDW21A, Parent Sample ID: 240821A9.LCSW21A

Run in Batch: 240821A9, Run Date: 08/21/2024 13:17, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		106.6	70.0	130.0	1.0	30.0

Matrix Spike (MS)

Lab Sample ID: 240821A9.6531507M, Parent Sample ID: S65315.06

Run in Batch: 240821A9, Run Date: 08/21/2024 18:45, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		75.1	70.0	130.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 240821A9.6531508N, Parent Sample ID: 240821A9.6531507M

Run in Batch: 240821A9, Run Date: 08/21/2024 19:10, Prep Date: 08/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane	*	63.8	70.0	130.0	7.3	30.0

Organics - Volatiles, Prep Batch ID: VS240822W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240822A9.BLKW22A

Run in Batch: 240822A9, Run Date: 08/22/2024 13:58, Prep Date: 08/22/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
1,4-Dioxane		ND	1.00	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 240822A9.LCSW22A

Run in Batch: 240822A9, Run Date: 08/22/2024 12:17, Prep Date: 08/22/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		95.3	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240822A9.LCSDW22A, Parent Sample ID: 240822A9.LCSW22A

Run in Batch: 240822A9, Run Date: 08/22/2024 12:42, Prep Date: 08/22/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		127.5	70.0	130.0	29.0	30.0

Merit Laboratories Login Checklist

Lab Set ID: S65317
Client: ARCADIS_NOVI (ARCADIS U.S., Inc.)
Project: 30214036 / RACER Lansing
Submitted: 08/20/2024 13:30 Login User: MMC

Attention: Kaitlyn Hunt
Address: Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Selection				Description	Note
Sample Receiving					
01.	☐ Yes	☒ No	☐ N/A	Samples are received at 4C +/- 2C Thermometer #	IR 7.4
02.	☒ Yes	☐ No	☐ N/A	Received on ice/ cooling process begun	
03.	☐ Yes	☒ No	☐ N/A	Samples shipped	
04.	☐ Yes	☒ No	☐ N/A	Samples left in 24 hr. drop box	
05.	☐ Yes	☐ No	☒ N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	☒ Yes	☐ No	☐ N/A	COC adequately filled out	
07.	☒ Yes	☐ No	☐ N/A	COC signed and relinquished to the lab	
08.	☒ Yes	☐ No	☐ N/A	Sample tag on bottles match COC	
09.	☐ Yes	☒ No	☐ N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	☒ Yes	☐ No	☐ N/A	Do sample have correct chemical preservation	
11.	☐ Yes	☐ No	☒ N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	☐ Yes	☒ No	☐ N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	☒ Yes	☐ No	☐ N/A	All bottles intact	
14.	☒ Yes	☐ No	☐ N/A	Appropriate analytical bottles are used	
15.	☒ Yes	☐ No	☐ N/A	Merit bottles used	
16.	☒ Yes	☐ No	☐ N/A	Sufficient sample volume received	
17.	☐ Yes	☒ No	☐ N/A	Samples require laboratory filtration	
18.	☒ Yes	☐ No	☐ N/A	Samples submitted within holding time	
19.	☐ Yes	☒ No	☐ N/A	Do water VOC, TOX, DO or Alkalinity bottles contain	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories, Inc.
2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

172111

CHAIN OF CUSTODY RECORD Plant 2

REPORT TO

CONTACT NAME: Kaitlyn Hunt
COMPANY: Arcadis
ADDRESS: 28550 Cabot Dr. Suite 500
CITY: Novi STATE: MI ZIP CODE: 48377
PHONE NO.: 947 777 5215 CELL NO.: P.O. NO.:
E-MAIL ADDRESS: Kaitlyn.Hunt@arcadis.com QUOTE NO.:

INVOICE TO

CONTACT NAME: ☑ SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: E-MAIL ADDRESS:

PROJECT NO./NAME: 30214036 / Racer Lansing
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Donald Richmond / Donald Richmond

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☑ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☐ EDD ☐ OTHER

MATRIX CODE: W=WATER GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR WS=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
☑ Other MI

Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	COLLECTION DATE	COLLECTION TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	1,4 Dioxane
65317.01	8/19/24	1140	PW-14-02_081924	GW	3		X						X
.02	8/20/24	0905	TW-14-02_082024	GW	3		X						X
.03	8/19/24	—	Dup-01_081924	GW	3		X						X

RELINQUISHED BY: SIGNATURE/ORGANIZATION: Arcadis ☐ Sampler	DATE: 8/20/24	TIME: 1330	RELINQUISHED BY: SIGNATURE/ORGANIZATION: Merit Drop Box
RECEIVED BY: SIGNATURE/ORGANIZATION: Merit Drop Box	DATE: 8/20/24	TIME: 1330	RECEIVED BY: SIGNATURE/ORGANIZATION: M Chilcote
RELINQUISHED BY: SIGNATURE/ORGANIZATION:	DATE:	TIME:	SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS
RECEIVED BY: SIGNATURE/ORGANIZATION:	DATE:	TIME:	SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS

DATE: 8/20/24 TIME: 1330
DATE: 8/20/24 TIME: 1330

NOTES: TEMP. ON ARRIVAL 7.4

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 05/24

Analytical Laboratory Report

Report ID: S65318.01(01)+QC01
Generated on 08/23/2024

Report to

Attention: Kaitlyn Hunt
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 C:947-777-5215 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Addtional Contacts: Marina Samp, Tiffany Linder

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S65318.01
Project: 30214036 / RACER Lansing
Collected Date(s): 08/19/2024
Submitted Date/Time: 08/20/2024 13:30
Sampled by: Donald Richmond
P.O. #: 30214036.0470B

Table of Contents

Cover Page (Page 1)
General Report Notes (Page 2)
Report Narrative (Page 2)
Laboratory Accreditations (Page 3)
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Glossary of Abbreviations (Page 3)
Method Summary (Page 4)
Sample Summary (Page 5)
QC Report (Pages 7-13)

Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Starred (*) analytes are not NY NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.
Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.
All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.
For a specific list of accredited analytes, please feel free to contact the laboratory or visit https://www.meritlabs.com/certifications.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
o	Associated EIS outside of control limits
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
q	Qualifier ion ratio outside of control limits
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
N/A	Not Applicable
SW8260B - SIM	SW 846 Method 8260B Revision 2 December 1996 SIMs

Analytical Laboratory Report

Sample Summary (1 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S65318.01	TW-15-11_081924	Groundwater	08/19/24 14:25

Analytical Laboratory Report

Lab Sample ID: S65318.01
Sample Tag: TW-15-11_081924
Collected Date/Time: 08/19/2024 14:25
Matrix: Groundwater
COC Reference: 172112

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	7.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	08/22/24 10:55	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 08/22/24 14:49, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	24	1		ug/L	1	123-91-1	

Quality Control Report

Report ID: S65318.01(01)+QC01
Generated on 08/23/2024

Report to

Attention: Kaitlyn Hunt
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 C:947-777-5215 FAX:

Report Produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S65318.01
Project: 30214036 / RACER Lansing
Submitted Date/Time: 08/20/2024 13:30
Sampled by: Donald Richmond
P.O. #: 30214036.0470B

QC Report Sections

Cover Page (Page 7)
Analysis Summary (Page 8)
Prep Batch Summary (Page 9)
Surrogates per QC Sample (Page 10)
Internal Standards per Lab Sample (Page 11)
Internal Standards per QC Sample (Page 12)
Batch QC Results (Page 13)

Report Flag Descriptions

*: QC result is outside of indicated control limits
W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.

Barbara Ball
Quality Assurance Manager

QC Report - Analysis Summary

Lab Sample ID: S65318.01
Sample Tag: TW-15-11_081924
Collected Date/Time: 08/19/2024 14:25
Matrix: Groundwater
COC Reference: 172112

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	08/22/24 14:49	240822A9	VS240822W1	Yes	BLK/LCS/LCSD

QC Report - Prep Batch Summary

Organics - Volatiles, Prep Batch ID: VS240822W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S65318.01	1,4-Dioxane	SW8260B - SIM	08/22/24 14:49	240822A9

QC Report - Surrogates per QC Sample

Organics - Volatiles, Prep Batch ID: VS240822W1

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240822A9.BLKW22A

Run in Batch: 240822A9, Run Date: 08/22/2024 13:58, Prep Date: 08/22/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
No Surrogates				

Laboratory Control Sample (LCS)

Lab Sample ID: 240822A9.LCSW22A

Run in Batch: 240822A9, Run Date: 08/22/2024 12:17, Prep Date: 08/22/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
No Surrogates				

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240822A9.LCSDW22A, Parent Sample ID: 240822A9.LCSW22A

Run in Batch: 240822A9, Run Date: 08/22/2024 12:42, Prep Date: 08/22/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
No Surrogates				

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S65318.01

Sample Tag: TW-15-11_081924

Collected Date/Time: 08/19/2024 14:25

Matrix: Groundwater

COC Reference: 172112

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 240822A9, Run Date: 08/22/2024 14:49, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**111.8**	50.0	200.0

QC Report - Internal Standards per QC Sample

Organics - Volatiles, Prep Batch ID: VS240822W1

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240822A9.BLKW22A

Run in Batch: 240822A9, Run Date: 08/22/2024 13:58, Prep Date: 08/22/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**104.2**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 240822A9.LCSW22A

Run in Batch: 240822A9, Run Date: 08/22/2024 12:17, Prep Date: 08/22/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**112.0**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240822A9.LCSDW22A, Parent Sample ID: 240822A9.LCSW22A

Run in Batch: 240822A9, Run Date: 08/22/2024 12:42, Prep Date: 08/22/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**88.6**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VS240822W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240822A9.BLKW22A

Run in Batch: 240822A9, Run Date: 08/22/2024 13:58, Prep Date: 08/22/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
1,4-Dioxane		ND	1.00	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 240822A9.LCSW22A

Run in Batch: 240822A9, Run Date: 08/22/2024 12:17, Prep Date: 08/22/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		95.3	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240822A9.LCSDW22A, Parent Sample ID: 240822A9.LCSW22A

Run in Batch: 240822A9, Run Date: 08/22/2024 12:42, Prep Date: 08/22/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		127.5	70.0	130.0	29.0	30.0

Merit Laboratories Login Checklist

Lab Set ID: S65318
Client: ARCADIS_NOVI (ARCADIS U.S., Inc.)
Project: 30214036 / RACER Lansing
Submitted: 08/20/2024 13:30 Login User: MMC

Attention: Kaitlyn Hunt
Address: Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Selection				Description	Note
Sample Receiving					
01.	☐ Yes	☒ No	☐ N/A	Samples are received at 4C +/- 2C Thermometer #	IR 7.4
02.	☒ Yes	☐ No	☐ N/A	Received on ice/ cooling process begun	
03.	☐ Yes	☒ No	☐ N/A	Samples shipped	
04.	☐ Yes	☒ No	☐ N/A	Samples left in 24 hr. drop box	
05.	☐ Yes	☐ No	☒ N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	☒ Yes	☐ No	☐ N/A	COC adequately filled out	
07.	☒ Yes	☐ No	☐ N/A	COC signed and relinquished to the lab	
08.	☒ Yes	☐ No	☐ N/A	Sample tag on bottles match COC	
09.	☐ Yes	☒ No	☐ N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	☒ Yes	☐ No	☐ N/A	Do sample have correct chemical preservation	
11.	☐ Yes	☐ No	☒ N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	☐ Yes	☒ No	☐ N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	☒ Yes	☐ No	☐ N/A	All bottles intact	
14.	☒ Yes	☐ No	☐ N/A	Appropriate analytical bottles are used	
15.	☒ Yes	☐ No	☐ N/A	Merit bottles used	
16.	☒ Yes	☐ No	☐ N/A	Sufficient sample volume received	
17.	☐ Yes	☒ No	☐ N/A	Samples require laboratory filtration	
18.	☒ Yes	☐ No	☐ N/A	Samples submitted within holding time	
19.	☐ Yes	☒ No	☐ N/A	Do water VOC, TOX, DO or Alkalinity bottles contain	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories, Inc.
2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

172112

CHAIN OF CUSTODY RECORD

Plant 3

REPORT TO

CONTACT NAME: Kaitlyn Hunt
COMPANY: Arcadis
ADDRESS: 28550 Cabot Dr. Suite 500
CITY: Novi STATE: MI ZIP CODE: 48377
PHONE NO.: 947 777 5215 CELL NO.: P.O. NO.:
E-MAIL ADDRESS: Kaitlyn.Hunt@arcadis.com QUOTE NO.:

INVOICE TO

CONTACT NAME: ☑ SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: E-MAIL ADDRESS:

PROJECT NO./NAME: 30214036 / Racer Lansing
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Donald Richmond / Donald Richmond

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☑ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☐ EDD ☐ OTHER

MATRIX CODE: W=WATER GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR WS=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
☒ Other MI

Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	COLLECTION DATE	COLLECTION TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	1,4 Dioxane
65318.01	8/19/24	1425	TW-15-11-081924	GW	3		X						X

RELINQUISHED BY: SIGNATURE/ORGANIZATION: [signature] / Arcadis ☐ Sampler DATE: 8/20/24 TIME: 1330
RECEIVED BY: SIGNATURE/ORGANIZATION: Merit Drop Box DATE: 8/20/24 TIME: 1330

RELINQUISHED BY: SIGNATURE/ORGANIZATION: Merit Drop Box DATE: 8/20/24 TIME: 1330
RECEIVED BY: SIGNATURE/ORGANIZATION: M Clinton DATE: 8/20/24 TIME: 1330

RELINQUISHED BY: SIGNATURE/ORGANIZATION: DATE: TIME:
RECEIVED BY: SIGNATURE/ORGANIZATION: DATE: TIME:

SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS
SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS

NOTES: TEMP. ON ARRIVAL 7.4

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Report of Analysis

Arcadis U.S., Inc.
630 Plaza Drive
Suite 600
Highlands Ranch, CO 80129
Attention: Kaitlyn Hunt

Project Name: RACER

Project Number: 30214036-0370A

Lot Number:**ZH22022**

Date Completed:09/17/2024

09/17/2024 12:08 PM
Approved and released by:
Project Manager II: **Kathy E. Smith**





The electronic signature above is the equivalent of a handwritten signature.
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Pace Analytical Services, LLC (*formerly Shealy Environmental Services, Inc.*)
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Case Narrative
Arcadis U.S., Inc.
Lot Number: ZH22022

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.
Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved The NELAC Institute (TNI) standards, the Pace Analytical Services, LLC ("Pace") Laboratory Quality Manual, standard operating procedures (SOPs), and Pace policies. Additionally, the DoD QSM version 5.4 has been followed for these samples, and specifically Table B-15 was followed for all PFAS samples. Any exceptions to the TNI standards, the Laboratory Quality Manual, SOPs, the DoD QSM, or policies are qualified on the results page or discussed below.

All QC associated with these samples were compliant with DOD QSM 5.4 table B-15 and our PFAS SOP.
Correction factors (CF) are used to calculate the original sample concentration. The CF is the inverse of the concentration factor (sample volume / extract final volume) times the dilution factor (DF). The CF is calculated as follows:

CF = DF * FV / Vo
FV is volume of extract (mL)
Vo is initial sample volume (mL)
DF is dilution factor. For undiluted analysis, DF = 1.

Sample concentration for aqueous samples:
Concentration (ng/L) = Cs*CF,

$$C_s = \frac{\left(\frac{(A_s x C_{is})}{A_{is}}\right) - B}{M1}$$

Where

C_s is on column concentration of target analyte in the sample (ng/L)
C_{is} is concentration of internal standard in the sample (ng/L)
A_s is peak response of target analyte in the sample
A_{is} is peak response of internal standard in the sample
M1 is the average RF from ICAL or the slope from linear regression ICAL
B is the y-intercept from the ICAL

Pace is a TNI accredited laboratory; however, the following analyses are currently not listed on our TNI scope of accreditation: E. coli and Total coliforms SM 9223 B-2004, Solid Chemical Material: TOC Walkley-Black, Biological Tissue: All, Non-Potable Water: SGT-HEM EPA 1664B, Silica EPA 200.7, Boron, Calcium, Silicon, Strontium EPA 200.8, Bicarbonate, Carbonate, and Hydroxide Alkalinity SM 2320 B-2011, SM 9221 C E-2006 & SM 9222D-2006, Strontium SW-846 6010D, VOC SM 6200 B-2011, Fecal Coliform Colilert-18. If you have any questions regarding this report, please contact the Pace Project Manager listed on the cover page.

Manual integration summaries are provided at the end of this report when applicable.

PFAS
The following samples were diluted due to the nature of the sample matrix: ZH22022-001, ZH22022-010, ZH22022-011, ZH22022-014. The LOQ has been elevated to reflect the dilution. Samples diluted due to dark color.

Surrogate recovery for the following samples was outside the upper control limit: ZH22022-006, ZH22022-007, ZH22022-009, ZH22022-011, ZH22022-015. These samples did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

Sample Summary

Arcadis U.S., Inc.

Lot Number: ZH22022

Project Name: RACER

Project Number: 30214036-0370A

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	MW-22-143_082024	Aqueous	08/20/2024 0935	08/22/2024
002	MW-22-158_082024	Aqueous	08/20/2024 1030	08/22/2024
003	MW-22-144_082024	Aqueous	08/20/2024 1120	08/22/2024
004	MW-22-145_082024	Aqueous	08/20/2024 1205	08/22/2024
005	MW-22-160_082024	Aqueous	08/20/2024 1310	08/22/2024
006	MW-22-146_082024	Aqueous	08/20/2024 1400	08/22/2024
007	DUP-03_082024	Aqueous	08/20/2024	08/22/2024
008	EB-01_082024	Aqueous	08/20/2024 1415	08/22/2024
009	MW-22-150_082124	Aqueous	08/21/2024 1035	08/22/2024
010	MW-22-151_082124	Aqueous	08/21/2024 1150	08/22/2024
011	DUP-04_082124	Aqueous	08/21/2024	08/22/2024
012	MW-22-152_082124	Aqueous	08/21/2024 1240	08/22/2024
013	EB-03_082124	Aqueous	08/21/2024 1355	08/22/2024
014	MW-22-148_082124	Aqueous	08/21/2024 1030	08/22/2024
015	MW-22-147_082124	Aqueous	08/21/2024 1210	08/22/2024
016	EB-02_082124	Aqueous	08/21/2024 1145	08/22/2024
017	MW-22-149_082124	Aqueous	08/21/2024 1340	08/22/2024

(17 samples)

Detection Summary

Arcadis U.S., Inc.

Lot Number: ZH22022

Project Name: RACER

Project Number: 30214036-0370A

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	MW-22-143_082024	Aqueous	PFBA	PFAS by ID	10	J	ng/L	8
001	MW-22-143_082024	Aqueous	PFHpA	PFAS by ID	8.5	J	ng/L	8
001	MW-22-143_082024	Aqueous	PFHxA	PFAS by ID	16	J	ng/L	8
001	MW-22-143_082024	Aqueous	PFOA	PFAS by ID	6.6	J	ng/L	8
001	MW-22-143_082024	Aqueous	PFPeA	PFAS by ID	11	J	ng/L	8
002	MW-22-158_082024	Aqueous	PFBS	PFAS by ID	1.5	J	ng/L	10
002	MW-22-158_082024	Aqueous	PFBA	PFAS by ID	4.6		ng/L	10
002	MW-22-158_082024	Aqueous	PFHpA	PFAS by ID	1.2	J	ng/L	10
002	MW-22-158_082024	Aqueous	PFHxA	PFAS by ID	2.3	J	ng/L	10
002	MW-22-158_082024	Aqueous	PFOA	PFAS by ID	0.95	J	ng/L	10
002	MW-22-158_082024	Aqueous	PFPeA	PFAS by ID	2.7	J	ng/L	10
003	MW-22-144_082024	Aqueous	PFBS	PFAS by ID	2.9	J	ng/L	12
003	MW-22-144_082024	Aqueous	PFHpS	PFAS by ID	0.44	J	ng/L	12
003	MW-22-144_082024	Aqueous	PFPeS	PFAS by ID	0.65	J	ng/L	12
003	MW-22-144_082024	Aqueous	PFHxS	PFAS by ID	4.5		ng/L	12
003	MW-22-144_082024	Aqueous	PFBA	PFAS by ID	5.5		ng/L	12
003	MW-22-144_082024	Aqueous	PFHpA	PFAS by ID	5.1		ng/L	12
003	MW-22-144_082024	Aqueous	PFHxA	PFAS by ID	8.9		ng/L	12
003	MW-22-144_082024	Aqueous	PFNA	PFAS by ID	1.0	J	ng/L	12
003	MW-22-144_082024	Aqueous	PFOA	PFAS by ID	15		ng/L	12
003	MW-22-144_082024	Aqueous	PFPeA	PFAS by ID	7.7		ng/L	12
003	MW-22-144_082024	Aqueous	PFOS	PFAS by ID	5.0		ng/L	12
004	MW-22-145_082024	Aqueous	PFBS	PFAS by ID	4.9		ng/L	14
004	MW-22-145_082024	Aqueous	PFHpS	PFAS by ID	0.85	J	ng/L	14
004	MW-22-145_082024	Aqueous	PFPeS	PFAS by ID	0.74	J	ng/L	14
004	MW-22-145_082024	Aqueous	PFHxS	PFAS by ID	3.4		ng/L	14
004	MW-22-145_082024	Aqueous	PFBA	PFAS by ID	8.8		ng/L	14
004	MW-22-145_082024	Aqueous	PFHpA	PFAS by ID	8.4		ng/L	14
004	MW-22-145_082024	Aqueous	PFHxA	PFAS by ID	11		ng/L	14
004	MW-22-145_082024	Aqueous	PFNA	PFAS by ID	2.7	J	ng/L	14
004	MW-22-145_082024	Aqueous	PFOA	PFAS by ID	34		ng/L	14
004	MW-22-145_082024	Aqueous	PFPeA	PFAS by ID	11		ng/L	14
004	MW-22-145_082024	Aqueous	PFOS	PFAS by ID	18		ng/L	14
005	MW-22-160_082024	Aqueous	PFBA	PFAS by ID	0.97	J	ng/L	16
006	MW-22-146_082024	Aqueous	PFBS	PFAS by ID	3.2	J	ng/L	18
006	MW-22-146_082024	Aqueous	PFHxS	PFAS by ID	1.1	J	ng/L	18
006	MW-22-146_082024	Aqueous	PFBA	PFAS by ID	9.3		ng/L	18
006	MW-22-146_082024	Aqueous	PFHpA	PFAS by ID	0.52	J	ng/L	18
006	MW-22-146_082024	Aqueous	PFHxA	PFAS by ID	1.1	J	ng/L	18
006	MW-22-146_082024	Aqueous	PFOA	PFAS by ID	2.4	J	ng/L	18
006	MW-22-146_082024	Aqueous	PFPeA	PFAS by ID	1.0	J	ng/L	18
006	MW-22-146_082024	Aqueous	PFOS	PFAS by ID	4.1		ng/L	18
007	DUP-03_082024	Aqueous	PFBS	PFAS by ID	3.1	J	ng/L	20

Detection Summary (Continued)

Lot Number: ZH22022

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
007	DUP-03_082024	Aqueous	PFHxS	PFAS by ID	0.95	J	ng/L	20
007	DUP-03_082024	Aqueous	PFBA	PFAS by ID	9.4		ng/L	20
007	DUP-03_082024	Aqueous	PFHpA	PFAS by ID	0.54	J	ng/L	20
007	DUP-03_082024	Aqueous	PFHxA	PFAS by ID	1.0	J	ng/L	20
007	DUP-03_082024	Aqueous	PFOA	PFAS by ID	2.3	J	ng/L	20
007	DUP-03_082024	Aqueous	PFPeA	PFAS by ID	1.1	J	ng/L	20
007	DUP-03_082024	Aqueous	PFOS	PFAS by ID	3.5		ng/L	20
008	EB-01_082024	Aqueous	PFHxA	PFAS by ID	1.0	J	ng/L	22
009	MW-22-150_082124	Aqueous	PFBA	PFAS by ID	2.6	J	ng/L	24
009	MW-22-150_082124	Aqueous	PFHpA	PFAS by ID	0.57	J	ng/L	24
009	MW-22-150_082124	Aqueous	PFPeA	PFAS by ID	1.3	J	ng/L	24
010	MW-22-151_082124	Aqueous	PFBS	PFAS by ID	6.9	J	ng/L	26
010	MW-22-151_082124	Aqueous	PFBA	PFAS by ID	12	J	ng/L	26
010	MW-22-151_082124	Aqueous	PFHpA	PFAS by ID	4.0	J	ng/L	26
010	MW-22-151_082124	Aqueous	PFHxA	PFAS by ID	8.6	J	ng/L	26
010	MW-22-151_082124	Aqueous	PFOA	PFAS by ID	8.6	J	ng/L	26
010	MW-22-151_082124	Aqueous	PFPeA	PFAS by ID	16	J	ng/L	26
011	DUP-04_082124	Aqueous	PFBS	PFAS by ID	8.2	J	ng/L	28
011	DUP-04_082124	Aqueous	PFBA	PFAS by ID	11	J	ng/L	28
011	DUP-04_082124	Aqueous	PFHpA	PFAS by ID	4.2	J	ng/L	28
011	DUP-04_082124	Aqueous	PFHxA	PFAS by ID	7.5	J	ng/L	28
011	DUP-04_082124	Aqueous	PFOA	PFAS by ID	6.0	J	ng/L	28
011	DUP-04_082124	Aqueous	PFPeA	PFAS by ID	17	J	ng/L	28
012	MW-22-152_082124	Aqueous	PFBS	PFAS by ID	8.8		ng/L	30
012	MW-22-152_082124	Aqueous	PFHxS	PFAS by ID	5.2		ng/L	30
012	MW-22-152_082124	Aqueous	PFBA	PFAS by ID	5.3		ng/L	30
012	MW-22-152_082124	Aqueous	PFHpA	PFAS by ID	0.90	J	ng/L	30
012	MW-22-152_082124	Aqueous	PFHxA	PFAS by ID	2.1	J	ng/L	30
012	MW-22-152_082124	Aqueous	PFOA	PFAS by ID	3.4		ng/L	30
012	MW-22-152_082124	Aqueous	PFPeA	PFAS by ID	2.6	J	ng/L	30
012	MW-22-152_082124	Aqueous	PFOS	PFAS by ID	2.1	J	ng/L	30
013	EB-03_082124	Aqueous	PFHxA	PFAS by ID	3.5		ng/L	32
015	MW-22-147_082124	Aqueous	6:2 FTS	PFAS by ID	1.6	J	ng/L	36
015	MW-22-147_082124	Aqueous	PFBS	PFAS by ID	2.5	J	ng/L	36
015	MW-22-147_082124	Aqueous	PFHxS	PFAS by ID	3.0	J	ng/L	36
015	MW-22-147_082124	Aqueous	PFBA	PFAS by ID	6.3		ng/L	36
015	MW-22-147_082124	Aqueous	PFHpA	PFAS by ID	2.0	J	ng/L	36
015	MW-22-147_082124	Aqueous	PFHxA	PFAS by ID	3.4		ng/L	36
015	MW-22-147_082124	Aqueous	PFOA	PFAS by ID	5.9		ng/L	36
015	MW-22-147_082124	Aqueous	PFPeA	PFAS by ID	3.5		ng/L	36
015	MW-22-147_082124	Aqueous	PFOS	PFAS by ID	4.1		ng/L	36
017	MW-22-149_082124	Aqueous	PFBS	PFAS by ID	1.2	J	ng/L	40
017	MW-22-149_082124	Aqueous	PFHxS	PFAS by ID	0.89	J	ng/L	40
017	MW-22-149_082124	Aqueous	PFBA	PFAS by ID	0.71	J	ng/L	40
017	MW-22-149_082124	Aqueous	PFHpA	PFAS by ID	0.52	J	ng/L	40
017	MW-22-149_082124	Aqueous	PFNA	PFAS by ID	1.1	J	ng/L	40
017	MW-22-149_082124	Aqueous	PFOA	PFAS by ID	1.7	J	ng/L	40
017	MW-22-149_082124	Aqueous	PFOS	PFAS by ID	2.6	J	ng/L	40

Detection Summary (Continued)

Lot Number: ZH22022

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page

(91 detections)

PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZH22022-001**

Description: **MW-22-143_082024** Matrix: **Aqueous**

Date Sampled: **08/20/2024 0935** Project Name: **RACER**

Date Received: **08/22/2024** Project Number: **30214036-0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	08/30/2024 1947	ALM	08/26/2024 1648	16906

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		40	2.4	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		40	3.3	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		40	8.0	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		40	10	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		40	4.4	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		40	10	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		40	2.4	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		40	3.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		40	4.7	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		20	2.1	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		20	3.9	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		20	2.5	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		20	3.6	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		20	3.1	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		20	3.0	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		20	2.8	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**10**	**J**	**20**	**3.0**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		20	2.6	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		20	2.4	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**8.5**	**J**	**20**	**2.2**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**16**	**J**	**20**	**3.4**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		20	2.3	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**6.6**	**J**	**20**	**4.1**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**11**	**J**	**20**	**2.7**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		20	3.0	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		20	2.6	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		20	3.1	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		106	25-150
13C2_6:2FTS		109	25-150
13C2_8:2FTS		95	25-150
13C2_PFDoA		85	25-150
13C2_PFTeDA		92	25-150
13C3_PFBS		92	25-150
13C3_PFHxS		96	25-150
13C3-HFPO-DA		91	25-150
13C4_PFBA		92	25-150
13C4_PFHpA		87	25-150
13C5_PFHxA		91	25-150
13C5_PFPeA		93	25-150
13C6_PFDA		80	25-150
13C7_PFUdA		85	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZH22022-001**

Description: **MW-22-143_082024** Matrix: **Aqueous**

Date Sampled: **08/20/2024 0935** Project Name: **RACER**

Date Received: **08/22/2024** Project Number: **30214036-0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		90	25-150
13C8_PFOS		90	25-150
13C8_PFOSA		81	10-150
13C9_PFNA		92	25-150
d5-EtFOSAA		91	25-150
d3-MeFOSAA		93	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZH22022-002**

Description: **MW-22-158_082024** Matrix: **Aqueous**

Date Sampled: **08/20/2024 1030** Project Name: **RACER**

Date Received: **08/22/2024** Project Number: **30214036-0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	08/30/2024 1958	ALM	08/26/2024 1648	16906

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.0	0.42	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.0	0.58	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.0	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.0	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.0	0.76	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.0	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.0	0.42	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.0	0.65	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.0	0.81	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**1.5**	**J**	**3.5**	**0.36**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.5	0.68	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.5	0.43	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.5	0.62	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.5	0.53	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.5	0.52	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.5	0.48	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**4.6**		**3.5**	**0.52**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.5	0.46	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.5	0.41	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**1.2**	**J**	**3.5**	**0.39**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**2.3**	**J**	**3.5**	**0.60**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.5	0.40	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**0.95**	**J**	**3.5**	**0.72**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**2.7**	**J**	**3.5**	**0.47**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.5	0.52	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.5	0.46	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.5	0.54	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.5	1.7	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		133	25-150
13C2_6:2FTS		108	25-150
13C2_8:2FTS		95	25-150
13C2_PFDoA		86	25-150
13C2_PFTeDA		94	25-150
13C3_PFBS		91	25-150
13C3_PFHxS		88	25-150
13C3-HFPO-DA		102	25-150
13C4_PFBA		71	25-150
13C4_PFHpA		92	25-150
13C5_PFHxA		100	25-150
13C5_PFPeA		100	25-150
13C6_PFDA		89	25-150
13C7_PFUdA		95	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZH22022-002**

Description: **MW-22-158_082024** Matrix: **Aqueous**

Date Sampled: **08/20/2024 1030** Project Name: **RACER**

Date Received: **08/22/2024** Project Number: **30214036-0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		96	25-150
13C8_PFOS		90	25-150
13C8_PFOSA		89	10-150
13C9_PFNA		92	25-150
d5-EtFOSAA		85	25-150
d3-MeFOSAA		96	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZH22022-003**

Description: **MW-22-144_082024** Matrix: **Aqueous**

Date Sampled: **08/20/2024 1120** Project Name: **RACER**

Date Received: **08/22/2024** Project Number: **30214036-0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	08/30/2024 2009	ALM	08/26/2024 1648	16906

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.8	0.41	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.8	0.56	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.8	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		6.8	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		6.8	0.74	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.8	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.8	0.41	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.8	0.64	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.8	0.79	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**2.9**	**J**	**3.4**	**0.35**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.4	0.66	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	**375-92-8**	**PFAS by ID SOP**	**0.44**	**J**	**3.4**	**0.42**	**ng/L**	**1**
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.4	0.60	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.4	0.52	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	**2706-91-4**	**PFAS by ID SOP**	**0.65**	**J**	**3.4**	**0.50**	**ng/L**	**1**
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**4.5**		**3.4**	**0.47**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**5.5**		**3.4**	**0.51**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.4	0.40	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**5.1**		**3.4**	**0.38**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**8.9**		**3.4**	**0.58**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**1.0**	**J**	**3.4**	**0.39**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**15**		**3.4**	**0.70**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**7.7**		**3.4**	**0.46**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.4	0.53	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**5.0**		**3.4**	**1.7**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		122	25-150
13C2_6:2FTS		103	25-150
13C2_8:2FTS		89	25-150
13C2_PFDoA		85	25-150
13C2_PFTeDA		95	25-150
13C3_PFBS		95	25-150
13C3_PFHxS		100	25-150
13C3-HFPO-DA		85	25-150
13C4_PFBA		78	25-150
13C4_PFHpA		93	25-150
13C5_PFHxA		89	25-150
13C5_PFPeA		99	25-150
13C6_PFDA		89	25-150
13C7_PFUdA		90	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZH22022-003**

Description: **MW-22-144_082024** Matrix: **Aqueous**

Date Sampled: **08/20/2024 1120** Project Name: **RACER**

Date Received: **08/22/2024** Project Number: **30214036-0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		96	25-150
13C8_PFOS		94	25-150
13C8_PFOSA		86	10-150
13C9_PFNA		83	25-150
d5-EtFOSAA		90	25-150
d3-MeFOSAA		101	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZH22022-004**

Description: **MW-22-145_082024** Matrix: **Aqueous**

Date Sampled: **08/20/2024 1205** Project Name: **RACER**

Date Received: **08/22/2024** Project Number: **30214036-0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
2	SOP SPE	PFAS by ID SOP	1	09/13/2024 1916	TAD	09/10/2024 1631	17578

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.7	0.40	ng/L	2
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.7	0.55	ng/L	2
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.7	1.3	ng/L	2
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		6.7	1.7	ng/L	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		6.7	0.73	ng/L	2
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.7	1.7	ng/L	2
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.7	0.40	ng/L	2
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.7	0.63	ng/L	2
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.7	0.78	ng/L	2
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**4.9**		**3.3**	**0.35**	**ng/L**	**2**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.3	0.65	ng/L	2
Perfluoro-1-heptanesulfonic acid (PFHpS)	**375-92-8**	**PFAS by ID SOP**	**0.85**	**J**	**3.3**	**0.42**	**ng/L**	**2**
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.3	0.59	ng/L	2
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.3	0.51	ng/L	2
Perfluoro-1-pentanesulfonic acid (PFPeS)	**2706-91-4**	**PFAS by ID SOP**	**0.74**	**J**	**3.3**	**0.50**	**ng/L**	**2**
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**3.4**		**3.3**	**0.46**	**ng/L**	**2**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**8.8**		**3.3**	**0.50**	**ng/L**	**2**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.3	0.44	ng/L	2
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.3	0.39	ng/L	2
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**8.4**		**3.3**	**0.37**	**ng/L**	**2**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**11**		**3.3**	**0.57**	**ng/L**	**2**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**2.7**	**J**	**3.3**	**0.39**	**ng/L**	**2**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**34**		**3.3**	**0.69**	**ng/L**	**2**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**11**		**3.3**	**0.45**	**ng/L**	**2**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.3	0.50	ng/L	2
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.3	0.44	ng/L	2
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.3	0.52	ng/L	2
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**18**		**3.3**	**1.7**	**ng/L**	**2**

Surrogate	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS		109	25-150
13C2_6:2FTS		91	25-150
13C2_8:2FTS		90	25-150
13C2_PFDoA		76	25-150
13C2_PFTeDA		78	25-150
13C3_PFBS		84	25-150
13C3_PFHxS		89	25-150
13C3-HFPO-DA		78	25-150
13C4_PFBA		72	25-150
13C4_PFHpA		84	25-150
13C5_PFHxA		87	25-150
13C5_PFPeA		83	25-150
13C6_PFDA		81	25-150
13C7_PFUdA		80	25-150

LOQ = Limit of Quantitation
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DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
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J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZH22022-004**

Description: **MW-22-145_082024** Matrix: **Aqueous**

Date Sampled: **08/20/2024 1205** Project Name: **RACER**

Date Received: **08/22/2024** Project Number: **30214036-0370A**

Surrogate	Q	Run 2 % Recovery	Acceptance Limits
13C8_PFOA		76	25-150
13C8_PFOS		83	25-150
13C8_PFOSA		83	10-150
13C9_PFNA		85	25-150
d5-EtFOSAA		86	25-150
d3-MeFOSAA		77	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZH22022-005**

Description: **MW-22-160_082024** Matrix: **Aqueous**

Date Sampled: **08/20/2024 1310** Project Name: **RACER**

Date Received: **08/22/2024** Project Number: **30214036-0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	08/30/2024 2030	ALM	08/26/2024 1648	16906

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.7	0.40	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.7	0.55	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.7	1.3	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		6.7	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		6.7	0.73	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.7	1.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.7	0.40	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.7	0.63	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.7	0.78	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.3	0.35	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.3	0.65	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.3	0.42	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.3	0.59	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.3	0.51	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.3	0.49	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.3	0.46	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**0.97**	**J**	**3.3**	**0.50**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.3	0.44	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.3	0.39	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.3	0.37	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.3	0.57	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.3	0.38	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.3	0.69	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.3	0.45	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.3	0.50	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.3	0.44	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.3	0.52	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.3	1.7	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		117	25-150
13C2_6:2FTS		120	25-150
13C2_8:2FTS		91	25-150
13C2_PFDoA		88	25-150
13C2_PFTeDA		94	25-150
13C3_PFBS		94	25-150
13C3_PFHxS		99	25-150
13C3-HFPO-DA		97	25-150
13C4_PFBA		72	25-150
13C4_PFHpA		96	25-150
13C5_PFHxA		96	25-150
13C5_PFPeA		97	25-150
13C6_PFDA		86	25-150
13C7_PFUdA		90	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZH22022-005**

Description: **MW-22-160_082024** Matrix: **Aqueous**

Date Sampled: **08/20/2024 1310** Project Name: **RACER**

Date Received: **08/22/2024** Project Number: **30214036-0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		98	25-150
13C8_PFOS		95	25-150
13C8_PFOSA		86	10-150
13C9_PFNA		88	25-150
d5-EtFOSAA		87	25-150
d3-MeFOSAA		92	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZH22022-006**

Description: **MW-22-146_082024** Matrix: **Aqueous**

Date Sampled: **08/20/2024 1400** Project Name: **RACER**

Date Received: **08/22/2024** Project Number: **30214036-0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	08/30/2024 2040	ALM	08/26/2024 1648	16906

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.9	0.42	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.9	0.57	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.9	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		6.9	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	6.9	0.75	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.9	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.9	0.42	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.9	0.65	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.9	0.80	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**3.2**	**J**	**3.4**	**0.36**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.4	0.67	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.4	0.43	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.4	0.61	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.4	0.53	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**1.1**	**J**	**3.4**	**0.48**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**9.3**		**3.4**	**0.52**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.4	0.41	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**0.52**	**J**	**3.4**	**0.39**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**1.1**	**J**	**3.4**	**0.59**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.4	0.40	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**2.4**	**J**	**3.4**	**0.71**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**1.0**	**J**	**3.4**	**0.47**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.4	0.52	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.4	0.46	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.4	0.54	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**4.1**		**3.4**	**1.7**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	160	25-150
13C2_6:2FTS		140	25-150
13C2_8:2FTS		100	25-150
13C2_PFDoA		89	25-150
13C2_PFTeDA		97	25-150
13C3_PFBS		83	25-150
13C3_PFHxS		90	25-150
13C3-HFPO-DA		91	25-150
13C4_PFBA		49	25-150
13C4_PFHpA		92	25-150
13C5_PFHxA		95	25-150
13C5_PFPeA		83	25-150
13C6_PFDA		92	25-150
13C7_PFUdA		88	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZH22022-006**

Description: **MW-22-146_082024** Matrix: **Aqueous**

Date Sampled: **08/20/2024 1400** Project Name: **RACER**

Date Received: **08/22/2024** Project Number: **30214036-0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		94	25-150
13C8_PFOS		89	25-150
13C8_PFOSA		91	10-150
13C9_PFNA		87	25-150
d5-EtFOSAA		84	25-150
d3-MeFOSAA		101	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZH22022-007**

Description: **DUP-03_082024** Matrix: **Aqueous**

Date Sampled: **08/20/2024** Project Name: **RACER**

Date Received: **08/22/2024** Project Number: **30214036-0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	08/30/2024 2051	ALM	08/26/2024 1648	16906

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.7	0.40	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.7	0.56	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.7	1.3	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		6.7	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	6.7	0.73	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.7	1.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.7	0.41	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.7	0.63	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.7	0.78	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**3.1**	**J**	**3.4**	**0.35**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.4	0.65	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.4	0.42	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.4	0.60	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.4	0.50	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**0.95**	**J**	**3.4**	**0.46**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**9.4**		**3.4**	**0.50**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.4	0.44	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.4	0.40	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**0.54**	**J**	**3.4**	**0.38**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**1.0**	**J**	**3.4**	**0.58**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.4	0.39	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**2.3**	**J**	**3.4**	**0.70**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**1.1**	**J**	**3.4**	**0.46**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.4	0.50	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.4	0.44	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.4	0.53	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**3.5**		**3.4**	**1.7**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	163	25-150
13C2_6:2FTS		147	25-150
13C2_8:2FTS		94	25-150
13C2_PFDoA		83	25-150
13C2_PFTeDA		89	25-150
13C3_PFBS		82	25-150
13C3_PFHxS		93	25-150
13C3-HFPO-DA		80	25-150
13C4_PFBA		48	25-150
13C4_PFHpA		86	25-150
13C5_PFHxA		95	25-150
13C5_PFPeA		80	25-150
13C6_PFDA		86	25-150
13C7_PFUdA		91	25-150

LOQ = Limit of Quantitation
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E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
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H = Out of holding time
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S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZH22022-007**

Description: **DUP-03_082024** Matrix: **Aqueous**

Date Sampled: **08/20/2024** Project Name: **RACER**

Date Received: **08/22/2024** Project Number: **30214036-0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		97	25-150
13C8_PFOS		82	25-150
13C8_PFOSA		83	10-150
13C9_PFNA		91	25-150
d5-EtFOSAA		85	25-150
d3-MeFOSAA		98	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZH22022-008**

Description: **EB-01_082024** Matrix: **Aqueous**

Date Sampled: **08/20/2024 1415** Project Name: **RACER**

Date Received: **08/22/2024** Project Number: **30214036-0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	08/30/2024 2102	ALM	08/26/2024 1648	16906

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.2	0.43	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.2	0.59	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.2	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.2	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.2	0.78	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.2	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.2	0.43	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.2	0.67	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.2	0.84	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.6	0.37	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.6	0.70	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.6	0.45	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.6	0.64	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.6	0.55	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.6	0.53	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.6	0.49	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		3.6	0.54	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.6	0.47	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.6	0.42	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.6	0.40	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**1.0**	**J**	**3.6**	**0.62**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.6	0.41	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.6	0.74	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.6	0.49	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.6	0.54	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.6	0.47	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.6	0.56	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.6	1.8	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		99	25-150
13C2_6:2FTS		106	25-150
13C2_8:2FTS		80	25-150
13C2_PFDoA		82	25-150
13C2_PFTeDA		90	25-150
13C3_PFBS		90	25-150
13C3_PFHxS		87	25-150
13C3-HFPO-DA		91	25-150
13C4_PFBA		94	25-150
13C4_PFHpA		90	25-150
13C5_PFHxA		91	25-150
13C5_PFPeA		92	25-150
13C6_PFDA		85	25-150
13C7_PFUdA		89	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZH22022-008**

Description: **EB-01_082024** Matrix: **Aqueous**

Date Sampled: **08/20/2024 1415** Project Name: **RACER**

Date Received: **08/22/2024** Project Number: **30214036-0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		90	25-150
13C8_PFOS		82	25-150
13C8_PFOSA		84	10-150
13C9_PFNA		85	25-150
d5-EtFOSAA		80	25-150
d3-MeFOSAA		96	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
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S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZH22022-009**

Description: **MW-22-150_082124** Matrix: **Aqueous**

Date Sampled: **08/21/2024 1035** Project Name: **RACER**

Date Received: **08/22/2024** Project Number: **30214036-0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	08/30/2024 2134	ALM	08/26/2024 1648	16906

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.9	0.41	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.9	0.57	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.9	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	6.9	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	6.9	0.75	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.9	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.9	0.42	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.9	0.64	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.9	0.80	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.4	0.36	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.4	0.67	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.4	0.43	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.4	0.61	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.4	0.53	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.4	0.47	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**2.6**	**J**	**3.4**	**0.52**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.4	0.41	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**0.57**	**J**	**3.4**	**0.38**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.4	0.59	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.4	0.40	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.4	0.71	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**1.3**	**J**	**3.4**	**0.47**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.4	0.52	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.4	0.54	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.4	1.7	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	186	25-150
13C2_6:2FTS	N	164	25-150
13C2_8:2FTS		93	25-150
13C2_PFDoA		86	25-150
13C2_PFTeDA		85	25-150
13C3_PFBS		80	25-150
13C3_PFHxS		91	25-150
13C3-HFPO-DA		78	25-150
13C4_PFBA		45	25-150
13C4_PFHpA		80	25-150
13C5_PFHxA		86	25-150
13C5_PFPeA		70	25-150
13C6_PFDA		89	25-150
13C7_PFUdA		85	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZH22022-009**

Description: **MW-22-150_082124** Matrix: **Aqueous**

Date Sampled: **08/21/2024 1035** Project Name: **RACER**

Date Received: **08/22/2024** Project Number: **30214036-0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		95	25-150
13C8_PFOS		84	25-150
13C8_PFOSA		84	10-150
13C9_PFNA		82	25-150
d5-EtFOSAA		82	25-150
d3-MeFOSAA		88	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZH22022-010**

Description: **MW-22-151_082124** Matrix: **Aqueous**

Date Sampled: **08/21/2024 1150** Project Name: **RACER**

Date Received: **08/22/2024** Project Number: **30214036-0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	08/30/2024 2144	ALM	08/26/2024 1648	16906

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		40	2.4	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		40	3.3	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		40	8.0	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		40	10	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		40	4.4	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		40	10	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		40	2.4	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		40	3.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		40	4.7	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**6.9**	**J**	**20**	**2.1**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		20	3.9	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		20	2.5	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		20	3.6	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		20	3.1	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		20	3.0	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		20	2.8	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**12**	**J**	**20**	**3.0**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		20	2.6	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		20	2.4	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**4.0**	**J**	**20**	**2.2**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**8.6**	**J**	**20**	**3.4**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		20	2.3	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**8.6**	**J**	**20**	**4.1**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**16**	**J**	**20**	**2.7**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		20	3.0	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		20	2.6	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		20	3.1	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		138	25-150
13C2_6:2FTS		145	25-150
13C2_8:2FTS		94	25-150
13C2_PFDoA		80	25-150
13C2_PFTeDA		78	25-150
13C3_PFBS		94	25-150
13C3_PFHxS		90	25-150
13C3-HFPO-DA		91	25-150
13C4_PFBA		86	25-150
13C4_PFHpA		86	25-150
13C5_PFHxA		98	25-150
13C5_PFPeA		95	25-150
13C6_PFDA		87	25-150
13C7_PFUdA		87	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZH22022-010**

Description: **MW-22-151_082124** Matrix: **Aqueous**

Date Sampled: **08/21/2024 1150** Project Name: **RACER**

Date Received: **08/22/2024** Project Number: **30214036-0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		97	25-150
13C8_PFOS		89	25-150
13C8_PFOSA		88	10-150
13C9_PFNA		95	25-150
d5-EtFOSAA		89	25-150
d3-MeFOSAA		96	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZH22022-011**

Description: **DUP-04_082124** Matrix: **Aqueous**

Date Sampled: **08/21/2024** Project Name: **RACER**

Date Received: **08/22/2024** Project Number: **30214036-0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	08/30/2024 2155	ALM	08/26/2024 1648	16906

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		40	2.4	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		40	3.3	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		40	8.0	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		40	10	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	40	4.4	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		40	10	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		40	2.4	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		40	3.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		40	4.7	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**8.2**	**J**	**20**	**2.1**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		20	3.9	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		20	2.5	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		20	3.6	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		20	3.1	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		20	3.0	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		20	2.8	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**11**	**J**	**20**	**3.0**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		20	2.6	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		20	2.4	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**4.2**	**J**	**20**	**2.2**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**7.5**	**J**	**20**	**3.4**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		20	2.3	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**6.0**	**J**	**20**	**4.1**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**17**	**J**	**20**	**2.7**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		20	3.0	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		20	2.6	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		20	3.1	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	185	25-150
13C2_6:2FTS		133	25-150
13C2_8:2FTS		102	25-150
13C2_PFDoA		90	25-150
13C2_PFTeDA		99	25-150
13C3_PFBS		94	25-150
13C3_PFHxS		88	25-150
13C3-HFPO-DA		98	25-150
13C4_PFBA		86	25-150
13C4_PFHpA		85	25-150
13C5_PFHxA		106	25-150
13C5_PFPeA		97	25-150
13C6_PFDA		87	25-150
13C7_PFUdA		97	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZH22022-011**

Description: **DUP-04_082124** Matrix: **Aqueous**

Date Sampled: **08/21/2024** Project Name: **RACER**

Date Received: **08/22/2024** Project Number: **30214036-0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		101	25-150
13C8_PFOS		108	25-150
13C8_PFOSA		83	10-150
13C9_PFNA		91	25-150
d5-EtFOSAA		87	25-150
d3-MeFOSAA		100	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZH22022-012**

Description: **MW-22-152_082124** Matrix: **Aqueous**

Date Sampled: **08/21/2024 1240** Project Name: **RACER**

Date Received: **08/22/2024** Project Number: **30214036-0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	08/30/2024 2205	ALM	08/26/2024 1648	16906

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.8	0.41	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.8	0.56	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.8	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		6.8	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		6.8	0.74	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.8	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.8	0.41	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.8	0.64	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.8	0.79	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**8.8**		**3.4**	**0.35**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.4	0.66	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.4	0.42	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.4	0.60	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.4	0.52	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.4	0.50	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**5.2**		**3.4**	**0.47**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**5.3**		**3.4**	**0.51**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.4	0.40	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**0.90**	**J**	**3.4**	**0.38**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**2.1**	**J**	**3.4**	**0.58**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.4	0.39	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**3.4**		**3.4**	**0.70**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**2.6**	**J**	**3.4**	**0.46**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.4	0.53	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**2.1**	**J**	**3.4**	**1.7**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		111	25-150
13C2_6:2FTS		112	25-150
13C2_8:2FTS		82	25-150
13C2_PFDoA		85	25-150
13C2_PFTeDA		88	25-150
13C3_PFBS		87	25-150
13C3_PFHxS		81	25-150
13C3-HFPO-DA		84	25-150
13C4_PFBA		71	25-150
13C4_PFHpA		89	25-150
13C5_PFHxA		82	25-150
13C5_PFPeA		92	25-150
13C6_PFDA		78	25-150
13C7_PFUdA		83	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZH22022-012**

Description: **MW-22-152_082124** Matrix: **Aqueous**

Date Sampled: **08/21/2024 1240** Project Name: **RACER**

Date Received: **08/22/2024** Project Number: **30214036-0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		89	25-150
13C8_PFOS		85	25-150
13C8_PFOSA		83	10-150
13C9_PFNA		83	25-150
d5-EtFOSAA		76	25-150
d3-MeFOSAA		89	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZH22022-013**

Description: **EB-03_082124** Matrix: **Aqueous**

Date Sampled: **08/21/2024 1355** Project Name: **RACER**

Date Received: **08/22/2024** Project Number: **30214036-0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	08/30/2024 2216	ALM	08/26/2024 1648	16906

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.8	0.41	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.8	0.56	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.8	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		6.8	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		6.8	0.74	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.8	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.8	0.41	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.8	0.64	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.8	0.79	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.4	0.35	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.4	0.66	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.4	0.42	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.4	0.61	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.4	0.52	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.4	0.47	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.4	0.40	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.4	0.38	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**3.5**		**3.4**	**0.59**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.4	0.39	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.4	0.71	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.4	0.46	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.4	0.53	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.4	1.7	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		104	25-150
13C2_6:2FTS		109	25-150
13C2_8:2FTS		98	25-150
13C2_PFDoA		83	25-150
13C2_PFTeDA		94	25-150
13C3_PFBS		99	25-150
13C3_PFHxS		99	25-150
13C3-HFPO-DA		96	25-150
13C4_PFBA		102	25-150
13C4_PFHpA		92	25-150
13C5_PFHxA		101	25-150
13C5_PFPeA		106	25-150
13C6_PFDA		89	25-150
13C7_PFUdA		96	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
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H = Out of holding time
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S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZH22022-013**

Description: **EB-03_082124** Matrix: **Aqueous**

Date Sampled: **08/21/2024 1355** Project Name: **RACER**

Date Received: **08/22/2024** Project Number: **30214036-0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		101	25-150
13C8_PFOS		97	25-150
13C8_PFOSA		84	10-150
13C9_PFNA		92	25-150
d5-EtFOSAA		91	25-150
d3-MeFOSAA		89	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZH22022-014**

Description: **MW-22-148_082124** Matrix: **Aqueous**

Date Sampled: **08/21/2024 1030** Project Name: **RACER**

Date Received: **08/22/2024** Project Number: **30214036-0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	08/30/2024 2227	ALM	08/26/2024 1648	16906

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		40	2.4	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		40	3.3	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		40	8.0	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		40	10	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		40	4.4	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		40	10	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		40	2.4	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		40	3.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		40	4.7	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		20	2.1	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		20	3.9	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		20	2.5	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		20	3.6	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		20	3.1	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		20	3.0	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		20	2.8	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		20	3.0	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		20	2.6	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		20	2.4	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		20	2.2	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		20	3.4	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		20	2.3	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		20	4.1	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		20	2.7	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		20	3.0	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		20	2.6	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		20	3.1	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		93	25-150
13C2_6:2FTS		95	25-150
13C2_8:2FTS		89	25-150
13C2_PFDoA		85	25-150
13C2_PFTeDA		92	25-150
13C3_PFBS		88	25-150
13C3_PFHxS		89	25-150
13C3-HFPO-DA		91	25-150
13C4_PFBA		92	25-150
13C4_PFHpA		87	25-150
13C5_PFHxA		84	25-150
13C5_PFPeA		93	25-150
13C6_PFDA		86	25-150
13C7_PFUdA		88	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZH22022-014**

Description: **MW-22-148_082124** Matrix: **Aqueous**

Date Sampled: **08/21/2024 1030** Project Name: **RACER**

Date Received: **08/22/2024** Project Number: **30214036-0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		90	25-150
13C8_PFOS		92	25-150
13C8_PFOSA		90	10-150
13C9_PFNA		82	25-150
d5-EtFOSAA		83	25-150
d3-MeFOSAA		94	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZH22022-015**

Description: **MW-22-147_082124** Matrix: **Aqueous**

Date Sampled: **08/21/2024 1210** Project Name: **RACER**

Date Received: **08/22/2024** Project Number: **30214036-0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	08/30/2024 2259	ALM	08/26/2024 1648	16906

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.3	0.38	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.3	0.52	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.3	1.3	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	**27619-97-2**	**PFAS by ID SOP**	**1.6**	**J**	**6.3**	**1.6**	**ng/L**	**1**
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	6.3	0.69	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.3	1.6	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.3	0.38	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.3	0.59	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.3	0.74	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**2.5**	**J**	**3.2**	**0.33**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.2	0.62	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.2	0.39	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.2	0.56	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.2	0.49	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.2	0.47	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**3.0**	**J**	**3.2**	**0.44**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**6.3**		**3.2**	**0.48**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.2	0.42	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.2	0.37	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**2.0**	**J**	**3.2**	**0.35**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**3.4**		**3.2**	**0.54**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.2	0.37	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**5.9**		**3.2**	**0.66**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**3.5**		**3.2**	**0.43**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.2	0.47	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.2	0.42	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.2	0.50	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**4.1**		**3.2**	**1.6**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	175	25-150
13C2_6:2FTS		116	25-150
13C2_8:2FTS		102	25-150
13C2_PFDoA		86	25-150
13C2_PFTeDA		88	25-150
13C3_PFBS		90	25-150
13C3_PFHxS		86	25-150
13C3-HFPO-DA		79	25-150
13C4_PFBA		57	25-150
13C4_PFHpA		83	25-150
13C5_PFHxA		92	25-150
13C5_PFPeA		81	25-150
13C6_PFDA		85	25-150
13C7_PFUdA		87	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZH22022-015**

Description: **MW-22-147_082124** Matrix: **Aqueous**

Date Sampled: **08/21/2024 1210** Project Name: **RACER**

Date Received: **08/22/2024** Project Number: **30214036-0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		96	25-150
13C8_PFOS		90	25-150
13C8_PFOSA		86	10-150
13C9_PFNA		93	25-150
d5-EtFOSAA		89	25-150
d3-MeFOSAA		99	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZH22022-016**

Description: **EB-02_082124** Matrix: **Aqueous**

Date Sampled: **08/21/2024 1145** Project Name: **RACER**

Date Received: **08/22/2024** Project Number: **30214036-0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	08/30/2024 2309	ALM	08/26/2024 1648	16906

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.7	0.41	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.7	0.56	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.7	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		6.7	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		6.7	0.74	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.7	1.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.7	0.41	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.7	0.63	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.7	0.79	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.4	0.35	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.4	0.66	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.4	0.42	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.4	0.60	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.4	0.52	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.4	0.50	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.4	0.46	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.4	0.44	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.4	0.40	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.4	0.38	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.4	0.58	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.4	0.39	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.4	0.70	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.4	0.46	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.4	0.53	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.4	1.7	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		110	25-150
13C2_6:2FTS		99	25-150
13C2_8:2FTS		87	25-150
13C2_PFDoA		80	25-150
13C2_PFTeDA		91	25-150
13C3_PFBS		86	25-150
13C3_PFHxS		91	25-150
13C3-HFPO-DA		98	25-150
13C4_PFBA		93	25-150
13C4_PFHpA		95	25-150
13C5_PFHxA		89	25-150
13C5_PFPeA		102	25-150
13C6_PFDA		83	25-150
13C7_PFUdA		87	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
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H = Out of holding time
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZH22022-016**

Description: **EB-02_082124** Matrix: **Aqueous**

Date Sampled: **08/21/2024 1145** Project Name: **RACER**

Date Received: **08/22/2024** Project Number: **30214036-0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		90	25-150
13C8_PFOS		84	25-150
13C8_PFOSA		81	10-150
13C9_PFNA		84	25-150
d5-EtFOSAA		79	25-150
d3-MeFOSAA		93	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZH22022-017**

Description: **MW-22-149_082124** Matrix: **Aqueous**

Date Sampled: **08/21/2024 1340** Project Name: **RACER**

Date Received: **08/22/2024** Project Number: **30214036-0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	09/04/2024 0206	OMNS	08/28/2024 1551	17028

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.3	0.38	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.3	0.52	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.3	1.3	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		6.3	1.6	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		6.3	0.69	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.3	1.6	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.3	0.38	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.3	0.59	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.3	0.74	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**1.2**	**J**	**3.2**	**0.33**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.2	0.61	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.2	0.39	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.2	0.56	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.2	0.48	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.2	0.47	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**0.89**	**J**	**3.2**	**0.44**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**0.71**	**J**	**3.2**	**0.47**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.2	0.41	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.2	0.37	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**0.52**	**J**	**3.2**	**0.35**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.2	0.54	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**1.1**	**J**	**3.2**	**0.36**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**1.7**	**J**	**3.2**	**0.65**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.2	0.43	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.2	0.47	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.2	0.42	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.2	0.49	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**2.6**	**J**	**3.2**	**1.6**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		101	25-150
13C2_6:2FTS		103	25-150
13C2_8:2FTS		95	25-150
13C2_PFDoA		88	25-150
13C2_PFTeDA		92	25-150
13C3_PFBS		92	25-150
13C3_PFHxS		97	25-150
13C3-HFPO-DA		91	25-150
13C4_PFBA		78	25-150
13C4_PFHpA		97	25-150
13C5_PFHxA		92	25-150
13C5_PFPeA		90	25-150
13C6_PFDA		96	25-150
13C7_PFUdA		90	25-150

LOQ = Limit of Quantitation
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZH22022-017**

Description: **MW-22-149_082124** Matrix: **Aqueous**

Date Sampled: **08/21/2024 1340** Project Name: **RACER**

Date Received: **08/22/2024** Project Number: **30214036-0370A**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		87	25-150
13C8_PFOS		83	25-150
13C8_PFOSA		90	10-150
13C9_PFNA		84	25-150
d5-EtFOSAA		88	25-150
d3-MeFOSAA		88	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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QC Summary

PFAS by LC/MS/MS - MB

Sample ID: ZQ16906-001
Batch: 16906
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 08/26/2024 1648

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
9Cl-PF3ONS	ND		1	8.0	0.48	ng/L	08/27/2024 2354
11Cl-PF3OUdS	ND		1	8.0	0.66	ng/L	08/27/2024 2354
8:2 FTS	ND		1	8.0	1.6	ng/L	08/27/2024 2354
6:2 FTS	ND		1	8.0	2.0	ng/L	08/27/2024 2354
4:2 FTS	ND		1	8.0	0.87	ng/L	08/27/2024 2354
GenX	ND		1	8.0	2.1	ng/L	08/27/2024 2354
ADONA	ND		1	8.0	0.48	ng/L	08/27/2024 2354
EtFOSAA	ND		1	8.0	0.75	ng/L	08/27/2024 2354
MeFOSAA	ND		1	8.0	0.93	ng/L	08/27/2024 2354
PFBS	ND		1	4.0	0.41	ng/L	08/27/2024 2354
PFDS	ND		1	4.0	0.78	ng/L	08/27/2024 2354
PFHpS	ND		1	4.0	0.50	ng/L	08/27/2024 2354
PFNS	ND		1	4.0	0.71	ng/L	08/27/2024 2354
PFOSA	ND		1	4.0	0.61	ng/L	08/27/2024 2354
PFPeS	ND		1	4.0	0.59	ng/L	08/27/2024 2354
PFHxS	ND		1	4.0	0.55	ng/L	08/27/2024 2354
PFBA	ND		1	4.0	0.60	ng/L	08/27/2024 2354
PFDA	ND		1	4.0	0.52	ng/L	08/27/2024 2354
PFDoA	ND		1	4.0	0.47	ng/L	08/27/2024 2354
PFHpA	ND		1	4.0	0.45	ng/L	08/27/2024 2354
PFHxA	ND		1	4.0	0.69	ng/L	08/27/2024 2354
PFNA	ND		1	4.0	0.46	ng/L	08/27/2024 2354
PFOA	ND		1	4.0	0.83	ng/L	08/27/2024 2354
PFPeA	ND		1	4.0	0.54	ng/L	08/27/2024 2354
PFTeDA	ND		1	4.0	0.60	ng/L	08/27/2024 2354
PFTrDA	ND		1	4.0	0.53	ng/L	08/27/2024 2354
PFUdA	ND		1	4.0	0.63	ng/L	08/27/2024 2354
PFOS	ND		1	4.0	2.0	ng/L	08/27/2024 2354

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		108	25-150
13C2_6:2FTS		96	25-150
13C2_8:2FTS		110	25-150
13C2_PFDoA		83	25-150
13C2_PFTeDA		102	25-150
13C3_PFBS		101	25-150
13C3_PFHxS		98	25-150
13C3-HFPO-DA		102	25-150
13C4_PFBA		102	25-150
13C4_PFHpA		98	25-150
13C5_PFHxA		101	25-150
13C5_PFPeA		99	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: ZQ16906-001
Batch: 16906
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 08/26/2024 1648

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		90	25-150
13C7_PFUdA		97	25-150
13C8_PFOA		104	25-150
13C8_PFOS		95	25-150
13C8_PFOSA		94	10-150
13C9_PFNA		95	25-150
d5-EtFOSAA		106	25-150
d3-MeFOSAA		96	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ16906-002
Batch: 16906
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 08/26/2024 1648

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	7.5	7.4		1	99	50-150	08/28/2024 0004
11Cl-PF3OUdS	7.5	7.1		1	95	50-150	08/28/2024 0004
8:2 FTS	7.7	8.0		1	104	50-150	08/28/2024 0004
6:2 FTS	7.6	9.1		1	120	50-150	08/28/2024 0004
4:2 FTS	7.5	7.7		1	103	50-150	08/28/2024 0004
GenX	16	15		1	93	50-150	08/28/2024 0004
ADONA	7.5	8.8		1	117	50-150	08/28/2024 0004
EtFOSAA	8.0	7.8		1	97	50-150	08/28/2024 0004
MeFOSAA	8.0	8.3		1	104	50-150	08/28/2024 0004
PFBS	7.1	7.3		1	103	50-150	08/28/2024 0004
PFDS	7.7	7.0		1	90	50-150	08/28/2024 0004
PFHpS	7.6	8.5		1	112	50-150	08/28/2024 0004
PFNS	7.7	7.2		1	94	50-150	08/28/2024 0004
PFOSA	8.0	7.7		1	96	50-150	08/28/2024 0004
PFPeS	7.5	7.4		1	99	50-150	08/28/2024 0004
PFHxS	7.3	7.7		1	106	50-150	08/28/2024 0004
PFBA	8.0	8.7		1	108	50-150	08/28/2024 0004
PFDA	8.0	8.2		1	103	50-150	08/28/2024 0004
PFDoA	8.0	8.0		1	101	50-150	08/28/2024 0004
PFHpA	8.0	8.0		1	100	50-150	08/28/2024 0004
PFHxA	8.0	9.5		1	118	50-150	08/28/2024 0004
PFNA	8.0	7.9		1	99	50-150	08/28/2024 0004
PFOA	8.0	8.3		1	104	50-150	08/28/2024 0004
PFPeA	8.0	8.9		1	111	50-150	08/28/2024 0004
PFTeDA	8.0	8.4		1	105	50-150	08/28/2024 0004
PFTrDA	8.0	8.1		1	101	50-150	08/28/2024 0004
PFUdA	8.0	8.1		1	101	50-150	08/28/2024 0004
PFOS	7.4	7.2		1	98	50-150	08/28/2024 0004

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		108	25-150
13C2_6:2FTS		103	25-150
13C2_8:2FTS		116	25-150
13C2_PFDoA		94	25-150
13C2_PFTeDA		107	25-150
13C3_PFBS		102	25-150
13C3_PFHxS		93	25-150
13C3-HFPO-DA		102	25-150
13C4_PFBA		103	25-150
13C4_PFHpA		101	25-150
13C5_PFHxA		100	25-150
13C5_PFPeA		92	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ16906-002
Batch: 16906
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 08/26/2024 1648

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		92	25-150
13C7_PFUdA		98	25-150
13C8_PFOA		107	25-150
13C8_PFOS		96	25-150
13C8_PFOSA		93	10-150
13C9_PFNA		98	25-150
d5-EtFOSAA		101	25-150
d3-MeFOSAA		96	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID: ZH22020-014MS
Batch: 16906
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 08/26/2024 1648

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	ND	37	41		1	109	50-150	08/30/2024 2237
11Cl-PF3OUdS	ND	38	35		1	92	50-150	08/30/2024 2237
8:2 FTS	ND	38	45		1	118	50-150	08/30/2024 2237
6:2 FTS	ND	38	38		1	101	50-150	08/30/2024 2237
4:2 FTS	ND	37	41		1	110	50-150	08/30/2024 2237
GenX	ND	80	75		1	94	50-150	08/30/2024 2237
ADONA	ND	38	36		1	95	50-150	08/30/2024 2237
EtFOSAA	ND	40	37		1	92	50-150	08/30/2024 2237
MeFOSAA	ND	40	39		1	98	50-150	08/30/2024 2237
PFBS	ND	35	35		1	93	50-150	08/30/2024 2237
PFDS	ND	39	42		1	109	50-150	08/30/2024 2237
PFHpS	ND	38	37		1	97	50-150	08/30/2024 2237
PFNS	ND	38	40		1	105	50-150	08/30/2024 2237
PFOSA	ND	40	42		1	104	50-150	08/30/2024 2237
PFPeS	ND	38	35		1	92	50-150	08/30/2024 2237
PFHxS	ND	36	37		1	102	50-150	08/30/2024 2237
PFBA	ND	40	41		1	96	50-150	08/30/2024 2237
PFDA	ND	40	39		1	96	50-150	08/30/2024 2237
PFDoA	ND	40	37		1	93	50-150	08/30/2024 2237
PFHpA	ND	40	39		1	97	50-150	08/30/2024 2237
PFHxA	ND	40	42		1	104	50-150	08/30/2024 2237
PFNA	ND	40	42		1	104	50-150	08/30/2024 2237
PFOA	ND	40	38		1	94	50-150	08/30/2024 2237
PFPeA	ND	40	36		1	91	50-150	08/30/2024 2237
PFTeDA	ND	40	40		1	97	50-150	08/30/2024 2237
PFTrDA	ND	40	39		1	97	50-150	08/30/2024 2237
PFUdA	ND	40	40		1	100	50-150	08/30/2024 2237
PFOS	ND	37	38		1	104	50-150	08/30/2024 2237

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		92	25-150
13C2_6:2FTS		102	25-150
13C2_8:2FTS		81	25-150
13C2_PFDoA		92	25-150
13C2_PFTeDA		97	25-150
13C3_PFBS		100	25-150
13C3_PFHxS		100	25-150
13C3-HFPO-DA		96	25-150
13C4_PFBA		101	25-150
13C4_PFHpA		94	25-150
13C5_PFHxA		92	25-150
13C5_PFPeA		103	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID: ZH22022-014MS
Batch: 16906
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 08/26/2024 1648

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		89	25-150
13C7_PFUdA		97	25-150
13C8_PFOA		93	25-150
13C8_PFOS		91	25-150
13C8_PFOSA		90	10-150
13C9_PFNA		91	25-150
d5-EtFOSAA		93	25-150
d3-MeFOSAA		96	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MSD

Sample ID: ZH22022-014MD
Batch: 16906
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 08/26/2024 1648

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
9Cl-PF3ONS	ND	37	41		1	109	0.042	50-150	30	08/30/2024 2248
11Cl-PF3OUdS	ND	38	35		1	92	0.088	50-150	30	08/30/2024 2248
8:2 FTS	ND	38	40		1	104	13	50-150	30	08/30/2024 2248
6:2 FTS	ND	38	37		1	96	4.7	50-150	30	08/30/2024 2248
4:2 FTS	ND	37	42		1	114	3.7	50-150	30	08/30/2024 2248
GenX	ND	80	71		1	88	6.0	50-150	30	08/30/2024 2248
ADONA	ND	38	34		1	91	4.2	50-150	30	08/30/2024 2248
EtFOSAA	ND	40	39		1	98	6.5	50-150	30	08/30/2024 2248
MeFOSAA	ND	40	45		1	113	13	50-150	30	08/30/2024 2248
PFBS	ND	35	34		1	92	1.6	50-150	30	08/30/2024 2248
PFDS	ND	39	38		1	98	11	50-150	30	08/30/2024 2248
PFHpS	ND	38	34		1	90	7.2	50-150	30	08/30/2024 2248
PFNS	ND	38	41		1	107	2.6	50-150	30	08/30/2024 2248
PFOSA	ND	40	44		1	110	5.6	50-150	30	08/30/2024 2248
PFPeS	ND	38	35		1	94	1.8	50-150	30	08/30/2024 2248
PFHxS	ND	36	37		1	101	1.1	50-150	30	08/30/2024 2248
PFBA	ND	40	40		1	94	2.1	50-150	30	08/30/2024 2248
PFDA	ND	40	36		1	89	8.3	50-150	30	08/30/2024 2248
PFDoA	ND	40	41		1	102	9.8	50-150	30	08/30/2024 2248
PFHpA	ND	40	36		1	90	7.4	50-150	30	08/30/2024 2248
PFHxA	ND	40	34		1	85	20	50-150	30	08/30/2024 2248
PFNA	ND	40	40		1	99	4.3	50-150	30	08/30/2024 2248
PFOA	ND	40	41		1	102	7.3	50-150	30	08/30/2024 2248
PFPeA	ND	40	39		1	97	6.7	50-150	30	08/30/2024 2248
PFTeDA	ND	40	36		1	89	8.7	50-150	30	08/30/2024 2248
PFTrDA	ND	40	38		1	94	2.4	50-150	30	08/30/2024 2248
PFUdA	ND	40	37		1	93	7.2	50-150	30	08/30/2024 2248
PFOS	ND	37	36		1	97	6.6	50-150	30	08/30/2024 2248

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		94	25-150
13C2_6:2FTS		113	25-150
13C2_8:2FTS		95	25-150
13C2_PFDoA		91	25-150
13C2_PFTeDA		107	25-150
13C3_PFBS		101	25-150
13C3_PFHxS		103	25-150
13C3-HFPO-DA		106	25-150
13C4_PFBA		102	25-150
13C4_PFHpA		96	25-150
13C5_PFHxA		102	25-150
13C5_PFPeA		103	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MSD

Sample ID: ZH22022-014MD
Batch: 16906
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 08/26/2024 1648

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		102	25-150
13C7_PFUdA		93	25-150
13C8_PFOA		98	25-150
13C8_PFOS		95	25-150
13C8_PFOSA		91	10-150
13C9_PFNA		93	25-150
d5-EtFOSAA		92	25-150
d3-MeFOSAA		97	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: ZQ17028-001
Batch: 17028
Analytical Method: PFAS by ID SOP
Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 08/28/2024 1551

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
9Cl-PF3ONS	ND		1	8.0	0.48	ng/L	09/04/2024 0052
11Cl-PF3OUdS	ND		1	8.0	0.66	ng/L	09/04/2024 0052
8:2 FTS	ND		1	8.0	1.6	ng/L	09/04/2024 0052
6:2 FTS	ND		1	8.0	2.0	ng/L	09/04/2024 0052
4:2 FTS	ND		1	8.0	0.87	ng/L	09/04/2024 0052
GenX	ND		1	8.0	2.1	ng/L	09/04/2024 0052
ADONA	ND		1	8.0	0.48	ng/L	09/04/2024 0052
EtFOSAA	ND		1	8.0	0.75	ng/L	09/04/2024 0052
MeFOSAA	ND		1	8.0	0.93	ng/L	09/04/2024 0052
PFBS	ND		1	4.0	0.41	ng/L	09/04/2024 0052
PFDS	ND		1	4.0	0.78	ng/L	09/04/2024 0052
PFHpS	ND		1	4.0	0.50	ng/L	09/04/2024 0052
PFNS	ND		1	4.0	0.71	ng/L	09/04/2024 0052
PFOSA	ND		1	4.0	0.61	ng/L	09/04/2024 0052
PFPeS	ND		1	4.0	0.59	ng/L	09/04/2024 0052
PFHxS	ND		1	4.0	0.55	ng/L	09/04/2024 0052
PFBA	ND		1	4.0	0.60	ng/L	09/04/2024 0052
PFDA	ND		1	4.0	0.52	ng/L	09/04/2024 0052
PFDoA	ND		1	4.0	0.47	ng/L	09/04/2024 0052
PFHpA	ND		1	4.0	0.45	ng/L	09/04/2024 0052
PFHxA	ND		1	4.0	0.69	ng/L	09/04/2024 0052
PFNA	ND		1	4.0	0.46	ng/L	09/04/2024 0052
PFOA	ND		1	4.0	0.83	ng/L	09/04/2024 0052
PFPeA	ND		1	4.0	0.54	ng/L	09/04/2024 0052
PFTeDA	ND		1	4.0	0.60	ng/L	09/04/2024 0052
PFTrDA	ND		1	4.0	0.53	ng/L	09/04/2024 0052
PFUdA	ND		1	4.0	0.63	ng/L	09/04/2024 0052
PFOS	ND		1	4.0	2.0	ng/L	09/04/2024 0052

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		88	25-150
13C2_6:2FTS		101	25-150
13C2_8:2FTS		90	25-150
13C2_PFDoA		87	25-150
13C2_PFTeDA		93	25-150
13C3_PFBS		96	25-150
13C3_PFHxS		93	25-150
13C3-HFPO-DA		91	25-150
13C4_PFBA		96	25-150
13C4_PFHpA		104	25-150
13C5_PFHxA		91	25-150
13C5_PFPeA		94	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: ZQ17028-001
Batch: 17028
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 08/28/2024 1551

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		85	25-150
13C7_PFUdA		89	25-150
13C8_PFOA		90	25-150
13C8_PFOS		96	25-150
13C8_PFOSA		90	10-150
13C9_PFNA		85	25-150
d5-EtFOSAA		94	25-150
d3-MeFOSAA		83	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ17028-002
Batch: 17028
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 08/28/2024 1551

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	7.5	8.7		1	116	50-150	09/04/2024 0102
11Cl-PF3OUdS	7.5	7.7		1	103	50-150	09/04/2024 0102
8:2 FTS	7.7	8.0		1	104	50-150	09/04/2024 0102
6:2 FTS	7.6	7.2		1	96	50-150	09/04/2024 0102
4:2 FTS	7.5	8.9		1	119	50-150	09/04/2024 0102
GenX	16	18		1	110	50-150	09/04/2024 0102
ADONA	7.5	8.4		1	111	50-150	09/04/2024 0102
EtFOSAA	8.0	8.6		1	107	50-150	09/04/2024 0102
MeFOSAA	8.0	8.4		1	105	50-150	09/04/2024 0102
PFBS	7.1	7.2		1	102	50-150	09/04/2024 0102
PFDS	7.7	8.5		1	110	50-150	09/04/2024 0102
PFHpS	7.6	8.3		1	109	50-150	09/04/2024 0102
PFNS	7.7	8.6		1	112	50-150	09/04/2024 0102
PFOSA	8.0	8.4		1	106	50-150	09/04/2024 0102
PFPeS	7.5	7.4		1	99	50-150	09/04/2024 0102
PFHxS	7.3	7.7		1	106	50-150	09/04/2024 0102
PFBA	8.0	8.7		1	109	50-150	09/04/2024 0102
PFDA	8.0	9.1		1	114	50-150	09/04/2024 0102
PFDoA	8.0	8.3		1	104	50-150	09/04/2024 0102
PFHpA	8.0	7.9		1	99	50-150	09/04/2024 0102
PFHxA	8.0	8.0		1	100	50-150	09/04/2024 0102
PFNA	8.0	8.8		1	110	50-150	09/04/2024 0102
PFOA	8.0	9.2		1	114	50-150	09/04/2024 0102
PFPeA	8.0	8.5		1	106	50-150	09/04/2024 0102
PFTeDA	8.0	9.0		1	113	50-150	09/04/2024 0102
PFTrDA	8.0	8.0		1	100	50-150	09/04/2024 0102
PFUdA	8.0	8.5		1	107	50-150	09/04/2024 0102
PFOS	7.4	7.6		1	102	50-150	09/04/2024 0102

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		83	25-150
13C2_6:2FTS		89	25-150
13C2_8:2FTS		82	25-150
13C2_PFDoA		83	25-150
13C2_PFTeDA		86	25-150
13C3_PFBS		91	25-150
13C3_PFHxS		87	25-150
13C3-HFPO-DA		82	25-150
13C4_PFBA		89	25-150
13C4_PFHpA		96	25-150
13C5_PFHxA		98	25-150
13C5_PFPeA		87	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ17028-002
Batch: 17028
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 08/28/2024 1551

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		81	25-150
13C7_PFUdA		83	25-150
13C8_PFOA		88	25-150
13C8_PFOS		88	25-150
13C8_PFOSA		87	10-150
13C9_PFNA		81	25-150
d5-EtFOSAA		85	25-150
d3-MeFOSAA		83	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: ZQ17578-001
Batch: 17578
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 09/10/2024 1631

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
9Cl-PF3ONS	ND		1	8.0	0.48	ng/L	09/13/2024 1512
11Cl-PF3OUdS	ND		1	8.0	0.66	ng/L	09/13/2024 1512
8:2 FTS	ND		1	8.0	1.6	ng/L	09/13/2024 1512
6:2 FTS	ND		1	8.0	2.0	ng/L	09/13/2024 1512
4:2 FTS	ND		1	8.0	0.87	ng/L	09/13/2024 1512
GenX	ND		1	8.0	2.1	ng/L	09/13/2024 1512
ADONA	ND		1	8.0	0.48	ng/L	09/13/2024 1512
EtFOSAA	ND		1	8.0	0.75	ng/L	09/13/2024 1512
MeFOSAA	ND		1	8.0	0.93	ng/L	09/13/2024 1512
PFBS	ND		1	4.0	0.41	ng/L	09/13/2024 1512
PFDS	ND		1	4.0	0.78	ng/L	09/13/2024 1512
PFHpS	ND		1	4.0	0.50	ng/L	09/13/2024 1512
PFNS	ND		1	4.0	0.71	ng/L	09/13/2024 1512
PFOSA	ND		1	4.0	0.61	ng/L	09/13/2024 1512
PFPeS	ND		1	4.0	0.59	ng/L	09/13/2024 1512
PFHxS	ND		1	4.0	0.55	ng/L	09/13/2024 1512
PFBA	ND		1	4.0	0.60	ng/L	09/13/2024 1512
PFDA	ND		1	4.0	0.52	ng/L	09/13/2024 1512
PFDoA	ND		1	4.0	0.47	ng/L	09/13/2024 1512
PFHpA	ND		1	4.0	0.45	ng/L	09/13/2024 1512
PFHxA	ND		1	4.0	0.69	ng/L	09/13/2024 1512
PFNA	ND		1	4.0	0.46	ng/L	09/13/2024 1512
PFOA	ND		1	4.0	0.83	ng/L	09/13/2024 1512
PFPeA	ND		1	4.0	0.54	ng/L	09/13/2024 1512
PFTeDA	ND		1	4.0	0.60	ng/L	09/13/2024 1512
PFTrDA	ND		1	4.0	0.53	ng/L	09/13/2024 1512
PFUdA	ND		1	4.0	0.63	ng/L	09/13/2024 1512
PFOS	ND		1	4.0	2.0	ng/L	09/13/2024 1512

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		96	25-150
13C2_6:2FTS		105	25-150
13C2_8:2FTS		92	25-150
13C2_PFDoA		81	25-150
13C2_PFTeDA		84	25-150
13C3_PFBS		91	25-150
13C3_PFHxS		94	25-150
13C3-HFPO-DA		102	25-150
13C4_PFBA		96	25-150
13C4_PFHpA		91	25-150
13C5_PFHxA		93	25-150
13C5_PFPeA		91	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: ZQ17578-001
Batch: 17578
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 09/10/2024 1631

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		100	25-150
13C7_PFUdA		92	25-150
13C8_PFOA		87	25-150
13C8_PFOS		92	25-150
13C8_PFOSA		89	10-150
13C9_PFNA		90	25-150
d5-EtFOSAA		98	25-150
d3-MeFOSAA		87	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ17578-002
Batch: 17578
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 09/10/2024 1631

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	7.5	7.4		1	99	50-150	09/13/2024 1523
11Cl-PF3OUdS	7.5	7.4		1	99	50-150	09/13/2024 1523
8:2 FTS	7.7	10		1	136	50-150	09/13/2024 1523
6:2 FTS	7.6	9.5		1	126	50-150	09/13/2024 1523
4:2 FTS	7.5	8.7		1	116	50-150	09/13/2024 1523
GenX	16	16		1	101	50-150	09/13/2024 1523
ADONA	7.5	9.3		1	123	50-150	09/13/2024 1523
EtFOSAA	8.0	7.8		1	97	50-150	09/13/2024 1523
MeFOSAA	8.0	8.4		1	105	50-150	09/13/2024 1523
PFBS	7.1	7.6		1	108	50-150	09/13/2024 1523
PFDS	7.7	7.0		1	91	50-150	09/13/2024 1523
PFHpS	7.6	9.1		1	119	50-150	09/13/2024 1523
PFNS	7.7	8.2		1	107	50-150	09/13/2024 1523
PFOSA	8.0	8.7		1	109	50-150	09/13/2024 1523
PFPeS	7.5	7.5		1	100	50-150	09/13/2024 1523
PFHxS	7.3	8.0		1	110	50-150	09/13/2024 1523
PFBA	8.0	8.6		1	107	50-150	09/13/2024 1523
PFDA	8.0	9.4		1	117	50-150	09/13/2024 1523
PFDoA	8.0	8.8		1	110	50-150	09/13/2024 1523
PFHpA	8.0	8.9		1	112	50-150	09/13/2024 1523
PFHxA	8.0	9.0		1	112	50-150	09/13/2024 1523
PFNA	8.0	8.5		1	107	50-150	09/13/2024 1523
PFOA	8.0	8.8		1	110	50-150	09/13/2024 1523
PFPeA	8.0	8.0		1	100	50-150	09/13/2024 1523
PFTeDA	8.0	8.8		1	110	50-150	09/13/2024 1523
PFTrDA	8.0	8.1		1	102	50-150	09/13/2024 1523
PFUdA	8.0	8.2		1	103	50-150	09/13/2024 1523
PFOS	7.4	7.8		1	106	50-150	09/13/2024 1523

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		93	25-150
13C2_6:2FTS		93	25-150
13C2_8:2FTS		87	25-150
13C2_PFDoA		79	25-150
13C2_PFTeDA		84	25-150
13C3_PFBS		91	25-150
13C3_PFHxS		88	25-150
13C3-HFPO-DA		95	25-150
13C4_PFBA		92	25-150
13C4_PFHpA		89	25-150
13C5_PFHxA		90	25-150
13C5_PFPeA		92	25-150

LOQ = Limit of Quantitation
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* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ17578-002
Batch: 17578
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 09/10/2024 1631

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		93	25-150
13C7_PFUdA		89	25-150
13C8_PFOA		83	25-150
13C8_PFOS		93	25-150
13C8_PFOSA		86	10-150
13C9_PFNA		89	25-150
d5-EtFOSAA		91	25-150
d3-MeFOSAA		87	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Chain of Custody
and
Miscellaneous Documents

Pace Analytical

PACE ANALYTICAL SERVICES, LLC
106 Vantage Point Drive • West Columbia, SC 29172
Telephone No. 803-791-9700 Fax No. 803-791-9111
www.pacelabs.com

Number 157499

ARCADIS — PLANT-6

Client	Report to Contact	Telephone No. / E-mail	Quote No.
28550 Cabot Dr. Suite 500	Kaitlyn.Hunter@arcadis.com	947.777.5215	
Address: Novi, MI 48377	Sampler's Signature: x	Analysis (Attach list if more space is needed)	Page 1 of 2
City / State / Zip Code	Printed Name: Billy J Cobern		ZH22022
Project Name: Racetrust Lansing			KES2

Project No.	P.O. Number	Collection Date(s)	Collection Time (Military)	Grab/Composite	Matrix: Aqueous	Soil	Non-Aqueous	No. of Containers by Preservative Type: Unpres.	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Final Volume	Sample ID / Description (Containers for each sample may be combined on one line.)	Remarks / Cooler I.D.
30214036.0370A		8/20/24	0935	G	X			2							MW-22-143_082024	
		8/20/24	1030	G	X			2							MW-22-158_082024	
		8/20/24	1120	G	X			2							MW-22-144_082024	
		8/20/24	1205	G	X			2							MW-22-145_082024	
		8/20/24	1310	G	X			2							MW-22-160_082024	
		8/20/24	1400	G	X			2							MW-22-146_082024	
		8/20/24	—	G	X			2							DUP-03_082024	
		8/20/24	1415	G	X			2							EB-01_082024	
		8/21/24	1035	G	X			2							MW-22-150_082124	
		8/21/24	1150	G	X			2							MW-22-161_082124	

Turn Around Time Required (Prior lab approval required for expedited TAT.)	Sample Disposal	Possible Hazard Identification	QC Requirements (Specify)
☑ Standard ☐ Rush (Specify)	☐ Return to Client ☑ Disposal by Lab	☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison ☐ Unknown	

	Relinquished by	Date	Time	Received by	Date	Time
1.	Austin Westhuis / Arcadis	8/21/24		FedEx	8/21/24	
2.		Date	Time		Date	Time
3.		Date	Time		Date	Time
4.	FedEx	8/21/24	1525		8/22/24	0725

Note: All samples are retained for four weeks from receipt unless other arrangements are made.

LAB USE ONLY — Received on ice (Circle) (Yes) No Ice Pack — Receipt Temp. 1.4 °C — Temp Blank

DISTRIBUTION: WHITE & YELLOW-Return to laboratory with Sample(s); PINK-Field/Client Copy

Document Number: ME002NS-01

PACE ANALYTICAL SERVICES, LLC

Pace Analytical® **Chain of Custody Record**

Pace Analytical Services, LLC.
106 Vantage Point Drive
West Columbia, South Carolina 29172
Telephone No. (803) 791-9700 Fax No. (803) 791-9111
www.pacelabs.com

Number Plant - 6

Client	Report to Contact	Telephone No. / E-mail	Quote No.
Arcadis	Tiffany Linder, Kaitlyn Hunt	(248)809-4013/ kaitlyn.hunt@arcadis.com	

Address	Sampler's Signature	Analysis (Attach list if more space is needed)	Page 2 of 2
28550 Cabot Drive, Suite 500	x [signature]		
City: Novi / State: MI / Zip Code: 48377	Printed Name: Austin Westhuis		
Project Name: RACER Lansing GWS			
Project Number: 30214036.03.7014 [redacted]	P.O. No.: US3450010148		

ZH22022

RES

Sample ID / Description (Containers for each sample may be combined on one line)	Collection Date(s)	Collection Time (military)	G=Grab C=Composite	Matrix: Aqueous	Solid	Non-Aqueous	No of Containers by Preservative Type: Unpres.	H2SO4	HNO3	HCl	NaOH	5035 Kit	Field Filtered	PFAS (Method 537M, EGLF 28 compounds)	Remarks / Cooler I.D.
DUP-04_082124	8/21/24	—	G	X			2							2	
MW-22-152_082124	8/21/24	1240	G	X			2							2	
EB-03_082124	8/21/24	1355	G	X			2							2	
MW-22-148_082124	8/21/24	1030	G	X			6							6	MS/MSD
MW-22-147_082124	8/21/24	1210	G	X			2							2	
EB-02_082124	8/21/24	1145	G	X			2							2	
MW-22-149_082124	8/21/24	1340	G	X			2							2	

Turn Around Time Required (Prior lab approval required for expedited TAT)	Sample Disposal	Possible Hazard Identification (List any known hazards in the remarks)	QC Requirements
☑ Standard ☐ Rush (Please Specify)	☐ Return to Client ☑ Disposal by Lab	☑ Non-Hazardous ☐ Flammable ☐ Skin Irritant ☐ SDS provided ☐ Unknown	

	Date	Time		Date	Time
1. Relinquished by: [signature] / Austin Westhuis / arcadis	8/21/24		1. Received by: FedEx	8/21/24	
2. Relinquished by	Date	Time	2. Received by	Date	Time
3. Relinquished by	Date	Time	3. Received by	Date	Time
4. Relinquished by: FedEx	Date: 8/22/24	Time: 1025	4. Laboratory Received by: [signature]	Date: 8/22/24	Time: 1025

Note: All samples are retained for four weeks from receipt unless other arrangements are made

LAB USE ONLY
Received on Ice (Check) ☑ Y ☐ N ☐ Ice Pack

Receipt Temp. 1.2 °C

Temp. Blank ☐ Y ☑ N

DCIf_Title: ENV-FRM-WCOL-0286 v02_Samples Receipt Checklist (SRC)
Effective Date: 8/2/2022

Sample Receipt Checklist (SRC)

Client: ARCADIS Cooler Inspected by/date: CMR / 8/22/22 Lot #: 2H22022

Means of receipt: ☐ Pace ☐ Client ☐ UPS ☒ FedEx ☐ Other: _____

☒ Yes	☐ No		1. Were custody seals present on the cooler?
☒ Yes	☐ No	☐ NA	2. If custody seals were present, were they intact and unbroken?

pH Strip ID: NA Chlorine Strip ID: NA Tested by: NA

Original temperature upon receipt / Derived (Corrected) temperature upon receipt %Solid Samp-Cup ID: NA

1.9 / 1.4 °C NA / NA °C NA / NA °C NA / NA °C

Method: ☐ Temperature Blank ☒ Against Bottles IR Gun ID: 6 IR Gun Correction Factor: 0 °C

Method of coolant: ☒ Wet Ice ☐ Ice Packs ☐ Dry Ice ☐ None

☒ Yes	☐ No	☐ NA	3. Were all coolers received at or below 6.0°C? If no, was Project Manager notified? PM was Notified by: phone / email / face-to-face (circle one).
☒ Yes	☐ No	☐ NA	4. Is the commercial courier's packing slip attached to this form?
☒ Yes	☐ No		5. Were proper custody procedures (relinquished/received) followed?
☒ Yes	☐ No		6. Were sample IDs listed on the COC and all sample containers?
☒ Yes	☐ No		7. Was collection date & time listed on the COC and all sample containers?
☒ Yes	☐ No		8. Did all container label information (ID, date, time) agree with the COC?
☒ Yes	☐ No		9. Were tests to be performed listed on the COC?
☒ Yes	☐ No		10. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)? _____
☒ Yes	☐ No		11. Was adequate sample volume available?
☒ Yes	☐ No		12. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
☒ Yes	☐ No		13. Were all samples containers accounted for? (No missing/excess)
☐ Yes	☐ No	☒ NA	14. Were VOA, 8015C and RSK-175 samples free of bubbles >"pea-size" (¼" or 6mm in diameter) in any of the VOA vials?
☐ Yes	☐ No	☒ NA	15. Were all DRO/metals/nutrient samples received at a pH of < 2?
☐ Yes	☐ No	☒ NA	16. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
☐ Yes	☐ No	☒ NA	17. Were all applicable NH3/TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?
☒ Yes	☐ No	☐ NA	18. Was the quote number listed on the container label? If yes, Quote # 153129

Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)

Sample(s) NA were received incorrectly preserved and were adjusted accordingly in sample receiving with NA mL of circle one: H2SO4, HNO3, HCl, NaOH using SR # NA. Time of preservation NA. If more than one preservative is needed, please note in the comments below.

Sample(s) NA were received with bubbles >6 mm in diameter.

Samples(s) NA were received with TRC > 0.5 mg/L (If #19 is *no*) and were adjusted accordingly in sample receiving with sodium thiosulfate ($Na_2S_2O_3$) with Unique ID: NA.

Comments:

Qualtrax ID: 56360 Pace® Analytical Services, LLC Page 1 of 1

Analytical Laboratory Report

Report ID: S68581.01(01)+QC01
Generated on 11/25/2024

Report to

Attention: Kaitlyn Hunt
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 C:947-777-5215 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Addtional Contacts: Marina Samp, Tiffany Linder

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S68581.01-S68581.14
Project: 30214036.0470B / RACER Lansing GWS
Collected Date(s): 11/12/2024 - 11/14/2024
Submitted Date/Time: 11/14/2024 16:25
Sampled by: Billy Cobern
P.O. #: US3460020275

Table of Contents

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Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Starred (*) analytes are not NY NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.
Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.
All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.
For a specific list of accredited analytes, please feel free to contact the laboratory or visit https://www.meritlabs.com/certifications.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
o	Associated EIS outside of control limits
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
q	Qualifier ion ratio outside of control limits
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
N/A	Not Applicable
SW8260B - SIM	SW 846 Method 8260B Revision 2 December 1996 SIMs

Sample Summary (14 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S68581.01	MW-13-43_111224	Groundwater	11/12/24 13:55
S68581.02	MW-13-43_111224 MS	Groundwater	11/12/24 13:55
S68581.03	MW-13-43_111224 MSD	Groundwater	11/12/24 13:55
S68581.04	MW-13-45_111224	Groundwater	11/12/24 15:10
S68581.05	MW-14-61_111224	Groundwater	11/12/24 16:20
S68581.06	MW-15-72_111324	Groundwater	11/13/24 09:45
S68581.07	MW-16-82_111324	Groundwater	11/13/24 10:50
S68581.08	MW-16-78_111324	Groundwater	11/13/24 12:00
S68581.09	MW-16-74_111324	Groundwater	11/13/24 13:30
S68581.10	MW-16-81_111324	Groundwater	11/13/24 14:40
S68581.11	MW-16-84_111324	Groundwater	11/13/24 15:55
S68581.12	MW-17-86_111424	Groundwater	11/14/24 12:40
S68581.13	MW-19-116_111424	Groundwater	11/14/24 13:35
S68581.14	MW-19-115_111424	Groundwater	11/14/24 15:00

Lab Sample ID: S68581.01
Sample Tag: MW-13-43_111224
Collected Date/Time: 11/12/2024 13:55
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/20/24 12:01	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/20/24 23:33, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	4	1		ug/L	1	123-91-1	

Lab Sample ID: S68581.02
Sample Tag: MW-13-43_111224 MS
Collected Date/Time: 11/12/2024 13:55
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/20/24 12:01	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/20/24 17:40, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	48	1		ug/L	1	123-91-1	1

1-Spiked at 50 mg/L

Lab Sample ID: S68581.03
Sample Tag: MW-13-43_111224 MSD
Collected Date/Time: 11/12/2024 13:55
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/20/24 12:01	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/20/24 18:05, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	54	1		ug/L	1	123-91-1	1

1-Spiked at 50 mg/L

Lab Sample ID: S68581.04
Sample Tag: MW-13-45_111224
Collected Date/Time: 11/12/2024 15:10
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/20/24 12:01	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/21/24 02:04, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	27	1		ug/L	1	123-91-1	

Lab Sample ID: S68581.05
Sample Tag: MW-14-61_111224
Collected Date/Time: 11/12/2024 16:20
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/20/24 12:01	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/20/24 23:58, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	7	1		ug/L	1	123-91-1	

Lab Sample ID: S68581.06
Sample Tag: MW-15-72_111324
Collected Date/Time: 11/13/2024 09:45
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/20/24 12:01	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/21/24 03:21, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	108	1		ug/L	1	123-91-1	

Lab Sample ID: S68581.07
Sample Tag: MW-16-82_111324
Collected Date/Time: 11/13/2024 10:50
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/20/24 12:01	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/21/24 00:48, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	9	1		ug/L	1	123-91-1	

Lab Sample ID: S68581.08
Sample Tag: MW-16-78_111324
Collected Date/Time: 11/13/2024 12:00
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/20/24 12:01	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/20/24 22:43, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	Not detected	1		ug/L	1	123-91-1	

Lab Sample ID: S68581.09
Sample Tag: MW-16-74_111324
Collected Date/Time: 11/13/2024 13:30
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/20/24 12:01	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/20/24 23:08, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	3	1		ug/L	1	123-91-1	

Lab Sample ID: S68581.10
Sample Tag: MW-16-81_111324
Collected Date/Time: 11/13/2024 14:40
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/20/24 12:01	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/21/24 02:30, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	58	1		ug/L	1	123-91-1	

Lab Sample ID: S68581.11
Sample Tag: MW-16-84_111324
Collected Date/Time: 11/13/2024 15:55
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/20/24 12:01	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/21/24 01:39, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	20	1		ug/L	1	123-91-1	

Lab Sample ID: S68581.12
Sample Tag: MW-17-86_111424
Collected Date/Time: 11/14/2024 12:40
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/20/24 12:01	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/21/24 01:14, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	16	1		ug/L	1	123-91-1	

Lab Sample ID: S68581.13
Sample Tag: MW-19-116_111424
Collected Date/Time: 11/14/2024 13:35
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/20/24 12:01	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/21/24 02:55, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	111	1		ug/L	1	123-91-1	

Lab Sample ID: S68581.14
Sample Tag: MW-19-115_111424
Collected Date/Time: 11/14/2024 15:00
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/20/24 12:01	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/21/24 00:23, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	7	1		ug/L	1	123-91-1	

Quality Control Report

Report ID: S68581.01(01)+QC01
Generated on 11/22/2024

Report to

Attention: Kaitlyn Hunt
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 C:947-777-5215 FAX:

Report Produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S68581.01-S68581.14
Project: 30214036.0470B / RACER Lansing GWS
Submitted Date/Time: 11/14/2024 16:25
Sampled by: Billy Cobern
P.O. #: US3460020275

QC Report Sections

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Analysis Summary (Pages 21-34)
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Internal Standards per Lab Sample (Pages 37-48)
Internal Standards per QC Sample (Page 49)
Batch QC Results (Page 50)

Report Flag Descriptions

*: QC result is outside of indicated control limits
W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.

Barbara Ball
Quality Assurance Manager

Lab Sample ID: S68581.01
Sample Tag: MW-13-43_111224
Collected Date/Time: 11/12/2024 13:55
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/20/24 23:33	241120B9	VS241120W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S68581.02

Sample Tag: MW-13-43_111224 MS

Collected Date/Time: 11/12/2024 13:55

Matrix: Groundwater

COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/20/24 17:40	241120B9	VS241120W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S68581.03
Sample Tag: MW-13-43_111224 MSD
Collected Date/Time: 11/12/2024 13:55
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/20/24 18:05	241120B9	VS241120W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S68581.04
Sample Tag: MW-13-45_111224
Collected Date/Time: 11/12/2024 15:10
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/21/24 02:04	241120B9	VS241120W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S68581.05
Sample Tag: MW-14-61_111224
Collected Date/Time: 11/12/2024 16:20
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/20/24 23:58	241120B9	VS241120W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S68581.06
Sample Tag: MW-15-72_111324
Collected Date/Time: 11/13/2024 09:45
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/21/24 03:21	241120B9	VS241120W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S68581.07
Sample Tag: MW-16-82_111324
Collected Date/Time: 11/13/2024 10:50
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/21/24 00:48	241120B9	VS241120W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S68581.08
Sample Tag: MW-16-78_111324
Collected Date/Time: 11/13/2024 12:00
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/20/24 22:43	241120B9	VS241120W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S68581.09
Sample Tag: MW-16-74_111324
Collected Date/Time: 11/13/2024 13:30
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/20/24 23:08	241120B9	VS241120W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S68581.10
Sample Tag: MW-16-81_111324
Collected Date/Time: 11/13/2024 14:40
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/21/24 02:30	241120B9	VS241120W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S68581.11
Sample Tag: MW-16-84_111324
Collected Date/Time: 11/13/2024 15:55
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/21/24 01:39	241120B9	VS241120W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S68581.12
Sample Tag: MW-17-86_111424
Collected Date/Time: 11/14/2024 12:40
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/21/24 01:14	241120B9	VS241120W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S68581.13
Sample Tag: MW-19-116_111424
Collected Date/Time: 11/14/2024 13:35
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/21/24 02:55	241120B9	VS241120W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S68581.14
Sample Tag: MW-19-115_111424
Collected Date/Time: 11/14/2024 15:00
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/21/24 00:23	241120B9	VS241120W1	Yes	BLK/LCS/LCSD/MS/MS

Organics - Volatiles, Prep Batch ID: VS241120W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S68581.01	1,4-Dioxane	SW8260B - SIM	11/20/24 23:33	241120B9
S68581.02	1,4-Dioxane	SW8260B - SIM	11/20/24 17:40	241120B9
S68581.03	1,4-Dioxane	SW8260B - SIM	11/20/24 18:05	241120B9
S68581.04	1,4-Dioxane	SW8260B - SIM	11/21/24 02:04	241120B9
S68581.05	1,4-Dioxane	SW8260B - SIM	11/20/24 23:58	241120B9
S68581.06	1,4-Dioxane	SW8260B - SIM	11/21/24 03:21	241120B9
S68581.07	1,4-Dioxane	SW8260B - SIM	11/21/24 00:48	241120B9
S68581.08	1,4-Dioxane	SW8260B - SIM	11/20/24 22:43	241120B9
S68581.09	1,4-Dioxane	SW8260B - SIM	11/20/24 23:08	241120B9
S68581.10	1,4-Dioxane	SW8260B - SIM	11/21/24 02:30	241120B9
S68581.11	1,4-Dioxane	SW8260B - SIM	11/21/24 01:39	241120B9
S68581.12	1,4-Dioxane	SW8260B - SIM	11/21/24 01:14	241120B9
S68581.13	1,4-Dioxane	SW8260B - SIM	11/21/24 02:55	241120B9
S68581.14	1,4-Dioxane	SW8260B - SIM	11/21/24 00:23	241120B9

Organics - Volatiles, Prep Batch ID: VS241120W1

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 241120B9.BLKW20B

Run in Batch: 241120B9, Run Date: 11/20/2024 20:36, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample (LCS)

Lab Sample ID: 241120B9.LCSW20B

Run in Batch: 241120B9, Run Date: 11/20/2024 16:50, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241120B9.LCSDW20B, Parent Sample ID: 241120B9.LCSW20B

Run in Batch: 241120B9, Run Date: 11/20/2024 17:15, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Matrix Spike (MS)

Lab Sample ID: 241120B9.6858102M, Parent Sample ID: S68581.01

Run in Batch: 241120B9, Run Date: 11/20/2024 17:40, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Matrix Spike Duplicate (MSD)

Lab Sample ID: 241120B9.6858103N, Parent Sample ID: 241120B9.6858102M

Run in Batch: 241120B9, Run Date: 11/20/2024 18:05, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S68581.01

Sample Tag: MW-13-43_111224

Collected Date/Time: 11/12/2024 13:55

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 241120B9, Run Date: 11/20/2024 23:33, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**114.9**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S68581.04

Sample Tag: MW-13-45_111224

Collected Date/Time: 11/12/2024 15:10

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 241120B9, Run Date: 11/21/2024 02:04, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**108.8**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S68581.05

Sample Tag: MW-14-61_111224

Collected Date/Time: 11/12/2024 16:20

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 241120B9, Run Date: 11/20/2024 23:58, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**113.5**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S68581.06

Sample Tag: MW-15-72_111324

Collected Date/Time: 11/13/2024 09:45

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 241120B9, Run Date: 11/21/2024 03:21, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**102.5**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S68581.07

Sample Tag: MW-16-82_111324

Collected Date/Time: 11/13/2024 10:50

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 241120B9, Run Date: 11/21/2024 00:48, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**115.5**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S68581.08

Sample Tag: MW-16-78_111324

Collected Date/Time: 11/13/2024 12:00

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 241120B9, Run Date: 11/20/2024 22:43, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**121.6**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S68581.09

Sample Tag: MW-16-74_111324

Collected Date/Time: 11/13/2024 13:30

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 241120B9, Run Date: 11/20/2024 23:08, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**124.0**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S68581.10

Sample Tag: MW-16-81_111324

Collected Date/Time: 11/13/2024 14:40

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 241120B9, Run Date: 11/21/2024 02:30, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**101.6**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S68581.11

Sample Tag: MW-16-84_111324

Collected Date/Time: 11/13/2024 15:55

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 241120B9, Run Date: 11/21/2024 01:39, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**103.8**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S68581.12

Sample Tag: MW-17-86_111424

Collected Date/Time: 11/14/2024 12:40

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 241120B9, Run Date: 11/21/2024 01:14, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**108.4**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S68581.13

Sample Tag: MW-19-116_111424

Collected Date/Time: 11/14/2024 13:35

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 241120B9, Run Date: 11/21/2024 02:55, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**92.8**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S68581.14

Sample Tag: MW-19-115_111424

Collected Date/Time: 11/14/2024 15:00

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 241120B9, Run Date: 11/21/2024 00:23, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**120.8**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VS241120W1

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 241120B9.BLKW20B

Run in Batch: 241120B9, Run Date: 11/20/2024 20:36, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**90.7**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 241120B9.LCSW20B

Run in Batch: 241120B9, Run Date: 11/20/2024 16:50, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**107.3**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241120B9.LCSDW20B, Parent Sample ID: 241120B9.LCSW20B

Run in Batch: 241120B9, Run Date: 11/20/2024 17:15, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**105.3**	50.0	200.0

Matrix Spike (MS)

Lab Sample ID: 241120B9.6858102M, Parent Sample ID: S68581.01

Run in Batch: 241120B9, Run Date: 11/20/2024 17:40, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**106.5**	50.0	200.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 241120B9.6858103N, Parent Sample ID: 241120B9.6858102M

Run in Batch: 241120B9, Run Date: 11/20/2024 18:05, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**105.6**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VS241120W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 241120B9.BLKW20B

Run in Batch: 241120B9, Run Date: 11/20/2024 20:36, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
1,4-Dioxane		ND	1.00	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 241120B9.LCSW20B

Run in Batch: 241120B9, Run Date: 11/20/2024 16:50, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		95.5	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241120B9.LCSDW20B, Parent Sample ID: 241120B9.LCSW20B

Run in Batch: 241120B9, Run Date: 11/20/2024 17:15, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		98.4	70.0	130.0	3.0	30.0

Matrix Spike (MS)

Lab Sample ID: 241120B9.6858102M, Parent Sample ID: S68581.01

Run in Batch: 241120B9, Run Date: 11/20/2024 17:40, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		87.4	70.0	130.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 241120B9.6858103N, Parent Sample ID: 241120B9.6858102M

Run in Batch: 241120B9, Run Date: 11/20/2024 18:05, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		99.3	70.0	130.0	11.7	30.0

Merit Laboratories Login Checklist

Lab Set ID: S68581
Client: ARCADIS_NOVI (ARCADIS U.S., Inc.)
Project: 30214036.0470B / RACER Lansing GWS
Submitted: 11/14/2024 16:25 Login User: MMC

Attention: Kaitlyn Hunt
Address: Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 5.4
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[ ] Yes	[X] No	[ ] N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	[X] Yes	[ ] No	[ ] N/A	Do sample have correct chemical preservation	
11.	[ ] Yes	[ ] No	[X] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[ ] Yes	[X] No	[ ] N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[ ] Yes	[X] No	[ ] N/A	Samples require laboratory filtration	
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[X] No	[ ] N/A	Do water VOC, TOX, DO or Alkalinity bottles contain	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Plant 2

Merit Laboratories, Inc.

2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # _____ OF _____

PLANT-2

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Tiffany Linder, Kaitlyn Hunt
COMPANY: Arcadis
ADDRESS: 28550 Cabot Drive, STE 500
CITY: Novi STATE: MI ZIP CODE: 48377
PHONE NO.: 947-777-5215 FAX NO.: P.O. NO.:
E-MAIL ADDRESS: kaitlyn.hunt@arcadis.com QUOTE NO.:

INVOICE TO

CONTACT NAME: ☒ SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: E-MAIL ADDRESS: tiffany.linder@arcadis.com

PROJECT NO./NAME: 30214036.0470B / RACER Lansing GWS
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Bill Cobern

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER _____

DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☒ EDD ☐ OTHER _____

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐ OHIO VAP ☐ Drinking Water ☐ DoD ☐ NPDES
Project Locations: ☐ Detroit ☐ New York ☐ Other _____
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	1,4-Dioxane - 8260 SIMS	VOC - 8260 SIMS	T. Phosphorus	TKN	Nitrate	Special Instructions
.01/.02/.03	11/12/24	1355	MW-13-43_111224	GW	9	9							9					MS/MSD
68581.04	11/12/24	1510	MW-13-45_111224	"	3	3							3					
.05	11/12/24	1620	MW-14-61_111224	"	3	3							3					
.06	11/13/24	0945	MW-15-72_111324	"	3	3							3					
.07	11/13/24	1050	MW-16-82_111324	"	3	3							3					
.08	11/13/24	1200	MW-16-78_111324	"	3	3							3					
.09	11/13/24	1330	MW-16-74_111324	"	3	3							3					
.10	11/13/24	1446	MW-16-81_111324	"	3	3							3					
.11	11/13/24	1555	MW-16-84_111324	"	3	3							3					
.12	11/14/24	1240	MW-17-86_111424	"	3	3							3					
.13	11/14/24	1335	MW-19-116_111424	"	3	3							3					
.14	11/14/24	1500	MW-19-115_111424	"	3	3							3					

RELINQUISHED BY: SIGNATURE/ORGANIZATION: Donald Bechard/Arcadis ☒ Sampler DATE: 11/14/24 TIME: 1625
RECEIVED BY: SIGNATURE/ORGANIZATION: Johanna Murray DATE: 11/14/24 TIME: 1625
RELINQUISHED BY: SIGNATURE/ORGANIZATION: DATE: TIME:
RECEIVED BY: SIGNATURE/ORGANIZATION: DATE: TIME:

RELINQUISHED BY: SIGNATURE/ORGANIZATION: DATE: TIME:
RECEIVED BY: SIGNATURE/ORGANIZATION: DATE: TIME:

SEAL NO. SEAL INTACT YES☐ NO☐ INITIALS
SEAL NO. SEAL INTACT YES☐ NO☐ INITIALS

NOTES: TEMP. ON ARRIVAL 5.4

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

Analytical Laboratory Report

Report ID: S68582.01(01)+QC01
Generated on 11/25/2024

Report to

Attention: Kaitlyn Hunt
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 C:947-777-5215 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Addtional Contacts: Marina Samp, Tiffany Linder

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S68582.01-S68582.04
Project: RACER Lansing / 30214036.0470A
Collected Date(s): 11/12/2024
Submitted Date/Time: 11/14/2024 16:25
Sampled by: Jarrett Humpula
P.O. #: 30214036.0470A

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Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Starred (*) analytes are not NY NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.
Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.
All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.
For a specific list of accredited analytes, please feel free to contact the laboratory or visit https://www.meritlabs.com/certifications.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
o	Associated EIS outside of control limits
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
q	Qualifier ion ratio outside of control limits
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
N/A	Not Applicable
SW5030C/8260C	SW 846 Method 8260C Revision 3 August 2006 / 5030C Revision 3 May 2003
SW8260B - SIM	SW 846 Method 8260B Revision 2 December 1996 SIMs

Analytical Laboratory Report

Sample Summary (4 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S68582.01	MW-22-157_111224	Groundwater	11/12/24 12:00
S68582.02	MW-23-161_111224	Groundwater	11/12/24 13:40
S68582.03	MW-23-162_111224	Groundwater	11/12/24 15:05
S68582.04	MW-23-163_111224	Groundwater	11/12/24 16:40

Lab Sample ID: S68582.01
Sample Tag: MW-22-157_111224
Collected Date/Time: 11/12/2024 12:00
Matrix: Groundwater
COC Reference: 176313

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/18/24 12:04	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/21/24 11:45, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	41	1		ug/L	1	123-91-1	

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/16/24 17:12, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	

Lab Sample ID: S68582.01 (continued)
Sample Tag: MW-22-157_111224

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/16/24 17:12, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Analytical Laboratory Report

Lab Sample ID: S68582.02
Sample Tag: MW-23-161_111224
Collected Date/Time: 11/12/2024 13:40
Matrix: Groundwater
COC Reference: 176313

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/20/24 12:01	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/21/24 13:26, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	49	1		ug/L	1	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S68582.03
Sample Tag: MW-23-162_111224
Collected Date/Time: 11/12/2024 15:05
Matrix: Groundwater
COC Reference: 176313

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/20/24 12:01	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/21/24 12:10, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	31	1		ug/L	1	123-91-1	

Lab Sample ID: S68582.04
Sample Tag: MW-23-163_111224
Collected Date/Time: 11/12/2024 16:40
Matrix: Groundwater
COC Reference: 176313

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/20/24 12:01	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/21/24 10:29, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	10	1		ug/L	1	123-91-1	

Quality Control Report

Report ID: S68582.01(01)+QC01
Generated on 11/22/2024

Report to

Attention: Kaitlyn Hunt
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 C:947-777-5215 FAX:

Report Produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S68582.01-S68582.04
Project: RACER Lansing / 30214036.0470A
Submitted Date/Time: 11/14/2024 16:25
Sampled by: Jarrett Humpula
P.O. #: 30214036.0470A

QC Report Sections

Cover Page (Page 11)
Analysis Summary (Pages 12-15)
Prep Batch Summary (Page 16)
Surrogates per Lab Sample (Page 17)
Surrogates per QC Sample (Pages 18-19)
Internal Standards per Lab Sample (Pages 20-23)
Internal Standards per QC Sample (Pages 24-25)
Batch QC Results (Pages 26-31)

Report Flag Descriptions

*: QC result is outside of indicated control limits
W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.

Barbara Ball
Quality Assurance Manager

Lab Sample ID: S68582.01
Sample Tag: MW-22-157_111224
Collected Date/Time: 11/12/2024 12:00
Matrix: Groundwater
COC Reference: 176313

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/21/24 11:45	241120D9	VS241120W2	Yes	BLK/LCS/LCSD/MS/MS
Volatile Organics - DEQ List	SW5030C/8260C	11/16/24 17:12	241115C7	VF241115W5	Yes	BLK/LCS/LCSD

Lab Sample ID: S68582.02
Sample Tag: MW-23-161_111224
Collected Date/Time: 11/12/2024 13:40
Matrix: Groundwater
COC Reference: 176313

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/21/24 13:26	241120D9	VS241120W2	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S68582.03
Sample Tag: MW-23-162_111224
Collected Date/Time: 11/12/2024 15:05
Matrix: Groundwater
COC Reference: 176313

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/21/24 12:10	241120D9	VS241120W2	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S68582.04
Sample Tag: MW-23-163_111224
Collected Date/Time: 11/12/2024 16:40
Matrix: Groundwater
COC Reference: 176313

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/21/24 10:29	241120D9	VS241120W2	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Prep Batch Summary

Organics - Volatiles, Prep Batch ID: VF241115W5

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S68582.01	Volatile Organics - DEQ List	SW5030C/8260C	11/16/24 17:12	241115C7

Organics - Volatiles, Prep Batch ID: VS241120W2

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S68582.01	1,4-Dioxane	SW8260B - SIM	11/21/24 11:45	241120D9
S68582.02	1,4-Dioxane	SW8260B - SIM	11/21/24 13:26	241120D9
S68582.03	1,4-Dioxane	SW8260B - SIM	11/21/24 12:10	241120D9
S68582.04	1,4-Dioxane	SW8260B - SIM	11/21/24 10:29	241120D9

QC Report - Surrogates per Lab Sample

Lab Sample ID: S68582.01

Sample Tag: MW-22-157_111224

Collected Date/Time: 11/12/2024 12:00

Matrix: Groundwater

COC Reference: 176313

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 241115C7, Run Date: 11/16/2024 17:12, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**100.1**	80.0	124.0
1,2-Dichloroethane-D4		**100.0**	72.0	125.0
Toluene-D8		**96.4**	89.0	112.0

Organics - Volatiles, Prep Batch ID: VF241115W5

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 241115C7.BLKW15C

Run in Batch: 241115C7, Run Date: 11/16/2024 13:38, Prep Date: 11/15/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**100.4**	80.0	124.0
1,2-Dichloroethane-D4		**95.9**	72.0	125.0
Toluene-D8		**94.9**	89.0	112.0

Laboratory Control Sample (LCS)

Lab Sample ID: 241115C7.LCSW15C

Run in Batch: 241115C7, Run Date: 11/16/2024 12:04, Prep Date: 11/15/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**100.8**	80.0	124.0
1,2-Dichloroethane-D4		**99.8**	72.0	125.0
Toluene-D8		**96.6**	89.0	112.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241115C7.LCSDW15C, Parent Sample ID: 241115C7.LCSW15C

Run in Batch: 241115C7, Run Date: 11/16/2024 12:28, Prep Date: 11/15/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**101.3**	80.0	124.0
1,2-Dichloroethane-D4		**96.8**	72.0	125.0
Toluene-D8		**95.8**	89.0	112.0

Organics - Volatiles, Prep Batch ID: VS241120W2

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 241120D9.BLKW20D

Run in Batch: 241120D9, Run Date: 11/21/2024 07:57, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample (LCS)

Lab Sample ID: 241120D9.LCSW20D

Run in Batch: 241120D9, Run Date: 11/21/2024 05:26, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241120D9.LCSDW20D, Parent Sample ID: 241120D9.LCSW20D

Run in Batch: 241120D9, Run Date: 11/21/2024 05:51, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Matrix Spike (MS)

Lab Sample ID: 241120D9.6858404M, Parent Sample ID: S68584.03

Run in Batch: 241120D9, Run Date: 11/21/2024 06:16, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Matrix Spike Duplicate (MSD)

Lab Sample ID: 241120D9.6858405N, Parent Sample ID: 241120D9.6858404M

Run in Batch: 241120D9, Run Date: 11/21/2024 06:42, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S68582.01

Sample Tag: MW-22-157_111224

Collected Date/Time: 11/12/2024 12:00

Matrix: Groundwater

COC Reference: 176313

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 241120D9, Run Date: 11/21/2024 11:45, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**104.7**	50.0	200.0

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 241115C7, Run Date: 11/16/2024 17:12, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**102.3**	50.0	200.0
1,4-Difluorobenzene		**105.7**	50.0	200.0
Chlorobenzene-D5		**102.5**	50.0	200.0
1,4-Dichlorobenzene-D4		**106.0**	50.0	200.0

Lab Sample ID: S68582.02

Sample Tag: MW-23-161_111224

Collected Date/Time: 11/12/2024 13:40

Matrix: Groundwater

COC Reference: 176313

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 241120D9, Run Date: 11/21/2024 13:26, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**107.7**	50.0	200.0

Lab Sample ID: S68582.03

Sample Tag: MW-23-162_111224

Collected Date/Time: 11/12/2024 15:05

Matrix: Groundwater

COC Reference: 176313

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 241120D9, Run Date: 11/21/2024 12:10, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**116.6**	50.0	200.0

Lab Sample ID: S68582.04

Sample Tag: MW-23-163_111224

Collected Date/Time: 11/12/2024 16:40

Matrix: Groundwater

COC Reference: 176313

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 241120D9, Run Date: 11/21/2024 10:29, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**109.1**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VF241115W5

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 241115C7.BLKW15C

Run in Batch: 241115C7, Run Date: 11/16/2024 13:38, Prep Date: 11/15/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**104.6**	50.0	200.0
1,4-Difluorobenzene		**105.6**	50.0	200.0
Chlorobenzene-D5		**100.1**	50.0	200.0
1,4-Dichlorobenzene-D4		**102.2**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 241115C7.LCSW15C

Run in Batch: 241115C7, Run Date: 11/16/2024 12:04, Prep Date: 11/15/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**102.5**	50.0	200.0
1,4-Difluorobenzene		**102.6**	50.0	200.0
Chlorobenzene-D5		**99.6**	50.0	200.0
1,4-Dichlorobenzene-D4		**101.7**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241115C7.LCSDW15C, Parent Sample ID: 241115C7.LCSW15C

Run in Batch: 241115C7, Run Date: 11/16/2024 12:28, Prep Date: 11/15/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**102.0**	50.0	200.0
1,4-Difluorobenzene		**101.0**	50.0	200.0
Chlorobenzene-D5		**96.8**	50.0	200.0
1,4-Dichlorobenzene-D4		**98.6**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VS241120W2

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 241120D9.BLKW20D

Run in Batch: 241120D9, Run Date: 11/21/2024 07:57, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**94.1**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 241120D9.LCSW20D

Run in Batch: 241120D9, Run Date: 11/21/2024 05:26, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**109.1**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241120D9.LCSDW20D, Parent Sample ID: 241120D9.LCSW20D

Run in Batch: 241120D9, Run Date: 11/21/2024 05:51, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**96.4**	50.0	200.0

Matrix Spike (MS)

Lab Sample ID: 241120D9.6858404M, Parent Sample ID: S68584.03

Run in Batch: 241120D9, Run Date: 11/21/2024 06:16, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**100.7**	50.0	200.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 241120D9.6858405N, Parent Sample ID: 241120D9.6858404M

Run in Batch: 241120D9, Run Date: 11/21/2024 06:42, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**102.2**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VF241115W5

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 241115C7.BLKW15C

Run in Batch: 241115C7, Run Date: 11/16/2024 13:38, Prep Date: 11/15/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Diethyl ether		ND	1.00	ug/l
Acetone		ND	10.00	ug/l
Methyl iodide		ND	1.00	ug/l
Carbon disulfide		ND	1.00	ug/l
tert-Methyl butyl ether (MTBE)		ND	1.00	ug/l
Acrylonitrile		ND	1.00	ug/l
2-Butanone (MEK)		ND	10.00	ug/l
Dichlorodifluoromethane		ND	1.00	ug/l
Chloromethane		ND	1.00	ug/l
Vinyl chloride		ND	1.00	ug/l
Bromomethane		ND	1.00	ug/l
Chloroethane		ND	1.00	ug/l
Trichlorofluoromethane		ND	1.00	ug/l
1,1-Dichloroethene		ND	1.00	ug/l
Methylene chloride		ND	1.00	ug/l
trans-1,2-Dichloroethene		ND	1.00	ug/l
1,1-Dichloroethane		ND	1.00	ug/l
cis-1,2-Dichloroethene		ND	1.00	ug/l
Tetrahydrofuran		ND	10.00	ug/l
Chloroform		ND	1.00	ug/l
Bromochloromethane		ND	1.00	ug/l
1,1,1-Trichloroethane		ND	1.00	ug/l
4-Methyl-2-pentanone (MIBK)		ND	10.00	ug/l
2-Hexanone		ND	10.00	ug/l
Carbon tetrachloride		ND	1.00	ug/l
Benzene		ND	1.00	ug/l
1,2-Dichloroethane		ND	1.00	ug/l
Trichloroethene		ND	1.00	ug/l
1,2-Dichloropropane		ND	1.00	ug/l
Bromodichloromethane		ND	1.00	ug/l
Dibromomethane		ND	1.00	ug/l
cis-1,3-Dichloropropene		ND	1.00	ug/l
Toluene		ND	1.00	ug/l
trans-1,3-Dichloropropene		ND	1.00	ug/l
1,1,2-Trichloroethane		ND	1.00	ug/l
Tetrachloroethene		ND	1.00	ug/l
trans-1,4-Dichloro-2-butene		ND	1.00	ug/l
Dibromochloromethane		ND	1.00	ug/l
1,2-Dibromoethane		ND	1.00	ug/l
Chlorobenzene		ND	1.00	ug/l
1,1,1,2-Tetrachloroethane		ND	1.00	ug/l
Ethylbenzene		ND	1.00	ug/l
p,m-Xylene		ND	2.00	ug/l
o-Xylene		ND	1.00	ug/l
Styrene		ND	1.00	ug/l
Isopropylbenzene		ND	1.00	ug/l

Organics - Volatiles, Prep Batch ID: VF241115W5 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK) (continued)

Lab Sample ID: 241115C7.BLKW15C

Run in Batch: 241115C7, Run Date: 11/16/2024 13:38, Prep Date: 11/15/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Bromoform		ND	1.00	ug/l
1,1,2,2-Tetrachloroethane		ND	1.00	ug/l
1,2,3-Trichloropropane		ND	1.00	ug/l
n-Propylbenzene		ND	1.00	ug/l
Bromobenzene		ND	1.00	ug/l
1,3,5-Trimethylbenzene		ND	1.00	ug/l
tert-Butylbenzene		ND	1.00	ug/l
1,2,4-Trimethylbenzene		ND	1.00	ug/l
sec-Butylbenzene		ND	1.00	ug/l
p-Isopropyltoluene		ND	1.00	ug/l
1,3-Dichlorobenzene		ND	1.00	ug/l
1,4-Dichlorobenzene		ND	1.00	ug/l
1,2-Dichlorobenzene		ND	1.00	ug/l
1,2,3-Trimethylbenzene		ND	1.00	ug/l
n-Butylbenzene		ND	1.00	ug/l
Hexachloroethane		ND	1.00	ug/l
1,2-Dibromo-3-chloropropane		ND	1.00	ug/l
1,2,4-Trichlorobenzene		ND	1.00	ug/l
1,2,3-Trichlorobenzene		ND	1.00	ug/l
Naphthalene		ND	1.00	ug/l
2-Methylnaphthalene		ND	1.00	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 241115C7.LCSW15C

Run in Batch: 241115C7, Run Date: 11/16/2024 12:04, Prep Date: 11/15/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Diethyl ether		102.8	67.4	121.2
Acetone		139.6	29.9	161.5
Methyl iodide		95.1	68.8	116.4
Carbon disulfide		91.8	63.8	137.4
tert-Methyl butyl ether (MTBE)		96.9	73.2	122.4
Acrylonitrile		108.6	69.9	128.9
2-Butanone (MEK)		109.1	44.0	134.4
Dichlorodifluoromethane		99.7	10.0	222.8
Chloromethane		95.2	23.8	166.5
Vinyl chloride		94.3	43.5	149.1
Bromomethane		92.1	56.8	151.3
Chloroethane		95.2	53.4	149.4
Trichlorofluoromethane		100.3	59.7	151.8
1,1-Dichloroethene		96.3	69.6	139.4
Methylene chloride		95.7	73.3	121.1
trans-1,2-Dichloroethene		90.5	73.6	129.3
1,1-Dichloroethane		94.6	71.5	126.2
cis-1,2-Dichloroethene		93.4	76.6	122.1
Tetrahydrofuran		101.3	59.0	117.9
Chloroform		96.9	78.4	124.0

Organics - Volatiles, Prep Batch ID: VF241115W5 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 241115C7.LCSW15C

Run in Batch: 241115C7, Run Date: 11/16/2024 12:04, Prep Date: 11/15/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Bromochloromethane		97.0	78.2	120.8
1,1,1-Trichloroethane		95.3	79.4	130.9
4-Methyl-2-pentanone (MIBK)		99.5	71.6	125.2
2-Hexanone		101.6	55.4	136.9
Carbon tetrachloride		93.0	72.6	133.0
Benzene		95.0	79.9	124.9
1,2-Dichloroethane		93.2	76.0	126.3
Trichloroethene		92.1	79.7	124.2
1,2-Dichloropropane		94.6	78.6	126.4
Bromodichloromethane		97.7	80.4	128.2
Dibromomethane		97.7	76.9	122.1
cis-1,3-Dichloropropene		87.5	79.8	129.9
Toluene		94.9	79.8	124.5
trans-1,3-Dichloropropene		86.4	74.0	131.3
1,1,2-Trichloroethane		97.0	78.7	123.1
Tetrachloroethene		93.1	74.5	124.5
trans-1,4-Dichloro-2-butene		90.0	68.6	135.4
Dibromochloromethane		100.5	74.6	127.2
1,2-Dibromoethane		99.9	70.3	133.7
Chlorobenzene		95.9	79.2	122.7
1,1,1,2-Tetrachloroethane		98.9	80.3	128.2
Ethylbenzene		98.3	79.5	129.1
p,m-Xylene		97.2	79.4	132.2
o-Xylene		96.7	80.2	131.0
Styrene		97.6	69.5	126.7
Isopropylbenzene		97.7	74.4	121.5
Bromoform		100.7	69.4	128.0
1,1,2,2-Tetrachloroethane		99.3	79.8	126.3
1,2,3-Trichloropropane		104.0	78.3	138.8
n-Propylbenzene		95.0	82.0	130.7
Bromobenzene		99.3	78.7	124.6
1,3,5-Trimethylbenzene		95.6	81.3	128.9
tert-Butylbenzene		92.4	80.7	128.9
1,2,4-Trimethylbenzene		96.1	81.4	130.8
sec-Butylbenzene		89.1	77.4	129.8
p-Isopropyltoluene		88.1	79.8	137.5
1,3-Dichlorobenzene		92.6	77.0	131.3
1,4-Dichlorobenzene		91.3	20.7	137.7
1,2-Dichlorobenzene		96.6	10.0	166.2
1,2,3-Trimethylbenzene		94.4	76.3	124.2
n-Butylbenzene		83.5	80.0	133.3
Hexachloroethane		91.7	23.8	138.1
1,2-Dibromo-3-chloropropane		109.7	21.2	189.4
1,2,4-Trichlorobenzene		94.1	27.4	143.4
1,2,3-Trichlorobenzene		99.8	75.4	131.4
Naphthalene		104.9	32.9	135.8

Organics - Volatiles, Prep Batch ID: VF241115W5 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 241115C7.LCSW15C

Run in Batch: 241115C7, Run Date: 11/16/2024 12:04, Prep Date: 11/15/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
2-Methylnaphthalene		111.6	25.5	165.5

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241115C7.LCSDW15C, Parent Sample ID: 241115C7.LCSW15C

Run in Batch: 241115C7, Run Date: 11/16/2024 12:28, Prep Date: 11/15/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Diethyl ether		102.0	67.4	121.2	0.7	30.0
Acetone		135.9	29.9	161.5	2.7	30.0
Methyl iodide		93.6	68.8	116.4	1.6	30.0
Carbon disulfide		90.7	63.8	137.4	1.2	30.0
tert-Methyl butyl ether (MTBE)		96.2	73.2	122.4	0.7	30.0
Acrylonitrile		109.2	69.9	128.9	0.6	30.0
2-Butanone (MEK)		109.2	44.0	134.4	0.1	30.0
Dichlorodifluoromethane		97.1	10.0	222.8	2.7	30.0
Chloromethane		92.7	23.8	166.5	2.7	30.0
Vinyl chloride		90.5	43.5	149.1	4.1	30.0
Bromomethane		88.6	56.8	151.3	3.9	30.0
Chloroethane		92.3	53.4	149.4	3.1	30.0
Trichlorofluoromethane		97.9	59.7	151.8	2.4	30.0
1,1-Dichloroethene		95.1	69.6	139.4	1.2	30.0
Methylene chloride		94.2	73.3	121.1	1.6	30.0
trans-1,2-Dichloroethene		88.0	73.6	129.3	2.9	30.0
1,1-Dichloroethane		92.7	71.5	126.2	2.1	30.0
cis-1,2-Dichloroethene		91.5	76.6	122.1	2.0	30.0
Tetrahydrofuran		98.8	59.0	117.9	2.5	30.0
Chloroform		95.5	78.4	124.0	1.4	30.0
Bromochloromethane		95.5	78.2	120.8	1.5	30.0
1,1,1-Trichloroethane		93.8	79.4	130.9	1.5	30.0
4-Methyl-2-pentanone (MIBK)		100.8	71.6	125.2	1.3	30.0
2-Hexanone		103.6	55.4	136.9	2.0	30.0
Carbon tetrachloride		93.1	72.6	133.0	0.1	30.0
Benzene		94.4	79.9	124.9	0.6	30.0
1,2-Dichloroethane		92.8	76.0	126.3	0.4	30.0
Trichloroethene		91.3	79.7	124.2	0.9	30.0
1,2-Dichloropropane		94.0	78.6	126.4	0.6	30.0
Bromodichloromethane		97.4	80.4	128.2	0.3	30.0
Dibromomethane		97.8	76.9	122.1	0.1	30.0
cis-1,3-Dichloropropene		87.4	79.8	129.9	0.2	30.0
Toluene		94.0	79.8	124.5	0.9	30.0
trans-1,3-Dichloropropene		86.7	74.0	131.3	0.4	30.0
1,1,2-Trichloroethane		97.7	78.7	123.1	0.7	30.0
Tetrachloroethene		92.4	74.5	124.5	0.7	30.0
trans-1,4-Dichloro-2-butene		92.6	68.6	135.4	2.8	30.0
Dibromochloromethane		102.0	74.6	127.2	1.5	30.0
1,2-Dibromoethane		100.9	70.3	133.7	1.0	30.0
Chlorobenzene		96.6	79.2	122.7	0.7	30.0

Organics - Volatiles, Prep Batch ID: VF241115W5 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: 241115C7.LCSDW15C, Parent Sample ID: 241115C7.LCSW15C

Run in Batch: 241115C7, Run Date: 11/16/2024 12:28, Prep Date: 11/15/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,1,1,2-Tetrachloroethane		99.8	80.3	128.2	0.9	30.0
Ethylbenzene		97.8	79.5	129.1	0.6	30.0
p,m-Xylene		97.0	79.4	132.2	0.2	30.0
o-Xylene		97.3	80.2	131.0	0.6	30.0
Styrene		97.1	69.5	126.7	0.5	30.0
Isopropylbenzene		96.7	74.4	121.5	1.0	30.0
Bromoform		105.5	69.4	128.0	4.7	30.0
1,1,2,2-Tetrachloroethane		102.8	79.8	126.3	3.5	30.0
1,2,3-Trichloropropane		105.9	78.3	138.8	1.8	30.0
n-Propylbenzene		92.0	82.0	130.7	3.2	30.0
Bromobenzene		98.8	78.7	124.6	0.6	30.0
1,3,5-Trimethylbenzene		94.5	81.3	128.9	1.2	30.0
tert-Butylbenzene		92.1	80.7	128.9	0.3	30.0
1,2,4-Trimethylbenzene		95.6	81.4	130.8	0.6	30.0
sec-Butylbenzene		88.9	77.4	129.8	0.2	30.0
p-Isopropyltoluene		88.1	79.8	137.5	0.0	30.0
1,3-Dichlorobenzene		92.0	77.0	131.3	0.7	30.0
1,4-Dichlorobenzene		92.0	20.7	137.7	0.8	30.0
1,2-Dichlorobenzene		96.3	10.0	166.2	0.4	30.0
1,2,3-Trimethylbenzene		95.7	76.3	124.2	1.4	30.0
n-Butylbenzene		83.9	80.0	133.3	0.5	30.0
Hexachloroethane		91.9	23.8	138.1	0.2	30.0
1,2-Dibromo-3-chloropropane		113.5	21.2	189.4	3.4	30.0
1,2,4-Trichlorobenzene		95.7	27.4	143.4	1.7	30.0
1,2,3-Trichlorobenzene		100.7	75.4	131.4	1.0	30.0
Naphthalene		107.2	32.9	135.8	2.2	30.0
2-Methylnaphthalene		115.8	25.5	165.5	3.7	30.0

Organics - Volatiles, Prep Batch ID: VS241120W2

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 241120D9.BLKW20D

Run in Batch: 241120D9, Run Date: 11/21/2024 07:57, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
1,4-Dioxane		ND	1.00	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 241120D9.LCSW20D

Run in Batch: 241120D9, Run Date: 11/21/2024 05:26, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		99.1	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241120D9.LCSDW20D, Parent Sample ID: 241120D9.LCSW20D

Run in Batch: 241120D9, Run Date: 11/21/2024 05:51, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		110.4	70.0	130.0	10.8	30.0

Matrix Spike (MS)

Lab Sample ID: 241120D9.6858404M, Parent Sample ID: S68584.03

Run in Batch: 241120D9, Run Date: 11/21/2024 06:16, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		103.7	70.0	130.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 241120D9.6858405N, Parent Sample ID: 241120D9.6858404M

Run in Batch: 241120D9, Run Date: 11/21/2024 06:42, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		101.6	70.0	130.0	1.7	30.0

Merit Laboratories Login Checklist

Lab Set ID: S68582
Client: ARCADIS_NOVI (ARCADIS U.S., Inc.)
Project: RACER Lansing / 30214036.0470A
Submitted: 11/14/2024 16:25 Login User: MMC

Attention: Kaitlyn Hunt
Address: Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 5.4
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[ ] Yes	[X] No	[ ] N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	[X] Yes	[ ] No	[ ] N/A	Do sample have correct chemical preservation	
11.	[ ] Yes	[ ] No	[X] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[ ] Yes	[X] No	[ ] N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[ ] Yes	[X] No	[ ] N/A	Samples require laboratory filtration	
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[X] No	[ ] N/A	Do water VOC, TOX, DO or Alkalinity bottles contain	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories, Inc.

2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # _____ OF _____

176313

Plant 2

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Tiffany Linder, Kaitlyn Hunt
COMPANY: Arcadis
ADDRESS: 28550 Cabot Drive, STE 500
CITY: Novi | STATE | ZIP CODE
PHONE NO.: 947-777-5215 | CELL NO. | P.O. NO.
E-MAIL ADDRESS: kaitlyn.hunt@arcadis.com | QUOTE NO.

INVOICE TO

CONTACT NAME | ☑ SAME
COMPANY
ADDRESS
CITY | STATE | ZIP CODE
PHONE NO. | E-MAIL ADDRESS

PROJECT NO./NAME: RALER Lansing / 30214036.0470A
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Jarrett Humpula

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☑ STANDARD ☐ OTHER _____

DELIVERABLES REQUIRED ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☐ EDD ☐ OTHER _____

MATRIX CODE: W=WATER GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR WS=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES
Project Locations
☐ Detroit ☐ New York
☐ Other _____
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	COLLECTION DATE	COLLECTION TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	VOCs	1,4-Dioxane
68582.01	11/12/24	1200	MW-22-157_111224	GW	3		X						X	X
.02	11/12/24	1340	MW-23-161_111224	GW	3		X							X
.03	11/12/24	1505	MW-23-162_111224	GW	3		X							X
.04	11/12/24	1640	MW-23-163_111224	GW	3		X							X

RELINQUISHED BY: SIGNATURE/ORGANIZATION	☐ Sampler	DATE	TIME
Donald Tilson / Arcadis		11/14/24	1625
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
Shawna Murray		11/14/24	1625
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

SEAL NO. | SEAL INTACT YES ☐ NO ☐ | INITIALS
SEAL NO. | SEAL INTACT YES ☐ NO ☐ | INITIALS

NOTES: TEMP. ON ARRIVAL 5.4

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 05/24

Analytical Laboratory Report

Report ID: S68583.01(01)+QC01
Generated on 11/25/2024

Report to

Attention: Kaitlyn Hunt
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 C:947-777-5215 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Addtional Contacts: Marina Samp, Tiffany Linder

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S68583.01-S68583.05
Project: 30214036.0470A / RACER Lansing GWS
Collected Date(s): 11/12/2024 - 11/13/2024
Submitted Date/Time: 11/14/2024 16:25
Sampled by: Jackie Schule
P.O. #: 30214036.0470A

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Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Starred (*) analytes are not NY NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.
Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.
All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.
For a specific list of accredited analytes, please feel free to contact the laboratory or visit https://www.meritlabs.com/certifications.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
o	Associated EIS outside of control limits
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
q	Qualifier ion ratio outside of control limits
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
N/A	Not Applicable
SW5030C/8260C	SW 846 Method 8260C Revision 3 August 2006 / 5030C Revision 3 May 2003
SW8260B - SIM	SW 846 Method 8260B Revision 2 December 1996 SIMs

Sample Summary (5 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S68583.01	MW-21-139_111224	Groundwater	11/12/24 11:10
S68583.02	MW-14-58R_111224	Groundwater	11/12/24 13:15
S68583.03	MW-22-153_111224	Groundwater	11/12/24 14:30
S68583.04	MW-22-156_111224	Groundwater	11/12/24 15:55
S68583.05	MW-22-155_111324	Groundwater	11/13/24 10:00

Lab Sample ID: S68583.01
Sample Tag: MW-21-139_111224
Collected Date/Time: 11/12/2024 11:10
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/20/24 12:01	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/21/24 08:23, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	2	1		ug/L	1	123-91-1	

Lab Sample ID: S68583.02
Sample Tag: MW-14-58R_111224
Collected Date/Time: 11/12/2024 13:15
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/20/24 12:01	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/21/24 11:20, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	220	10		ug/L	10	123-91-1	

Lab Sample ID: S68583.03
Sample Tag: MW-22-153_111224
Collected Date/Time: 11/12/2024 14:30
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/18/24 12:04	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/21/24 13:01, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	48	1		ug/L	1	123-91-1	

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/16/24 17:36, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	2	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	109	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	

Lab Sample ID: S68583.03 (continued)
Sample Tag: MW-22-153_111224

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/16/24 17:36, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Lab Sample ID: S68583.04
Sample Tag: MW-22-156_111224
Collected Date/Time: 11/12/2024 15:55
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/18/24 12:04	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/21/24 13:51, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	63	1		ug/L	1	123-91-1	

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/22/24 16:43, Analyst: ACK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	1	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	44	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	15	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	199	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	

Lab Sample ID: S68583.04 (continued)
Sample Tag: MW-22-156_111224

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/22/24 16:43, Analyst: ACK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Lab Sample ID: S68583.05
Sample Tag: MW-22-155_111324
Collected Date/Time: 11/13/2024 10:00
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/20/24 12:01	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/21/24 14:41, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	159	1		ug/L	1	123-91-1	

Quality Control Report

Report ID: S68583.01(01)+QC01
Generated on 11/25/2024

Report to

Attention: Kaitlyn Hunt
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 C:947-777-5215 FAX:

Report Produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S68583.01-S68583.05
Project: 30214036.0470A / RACER Lansing GWS
Submitted Date/Time: 11/14/2024 16:25
Sampled by: Jackie Schule
P.O. #: 30214036.0470A

QC Report Sections

Cover Page (Page 13)
Analysis Summary (Pages 14-18)
Prep Batch Summary (Page 19)
Surrogates per Lab Sample (Pages 20-21)
Surrogates per QC Sample (Pages 22-24)
Internal Standards per Lab Sample (Pages 25-29)
Internal Standards per QC Sample (Pages 30-32)
Batch QC Results (Pages 33-46)

Report Flag Descriptions

*: QC result is outside of indicated control limits
W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.

Barbara Ball
Quality Assurance Manager

QC Report - Analysis Summary

Lab Sample ID: S68583.01
Sample Tag: MW-21-139_111224
Collected Date/Time: 11/12/2024 11:10
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/21/24 08:23	241120D9	VS241120W2	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S68583.02
Sample Tag: MW-14-58R_111224
Collected Date/Time: 11/12/2024 13:15
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/21/24 11:20	241120D9	VS241120W2	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S68583.03

Sample Tag: MW-22-153_111224

Collected Date/Time: 11/12/2024 14:30

Matrix: Groundwater

COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/21/24 13:01	241120D9	VS241120W2	Yes	BLK/LCS/LCSD/MS/MS
Volatile Organics - DEQ List	SW5030C/8260C	11/16/24 17:36	241115C7	VF241115W5	Yes	BLK/LCS/LCSD

Lab Sample ID: S68583.04

Sample Tag: MW-22-156_111224

Collected Date/Time: 11/12/2024 15:55

Matrix: Groundwater

COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/21/24 13:51	241120D9	VS241120W2	Yes	BLK/LCS/LCSD/MS/MS
Volatile Organics - DEQ List	SW5030C/8260C	11/22/24 16:43	241122A11	VF241122W2	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S68583.05
Sample Tag: MW-22-155_111324
Collected Date/Time: 11/13/2024 10:00
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/21/24 14:41	241120D9	VS241120W2	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Prep Batch Summary

Organics - Volatiles, Prep Batch ID: VF241115W5

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S68583.03	Volatile Organics - DEQ List	SW5030C/8260C	11/16/24 17:36	241115C7

Organics - Volatiles, Prep Batch ID: VF241122W2

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S68583.04	Volatile Organics - DEQ List	SW5030C/8260C	11/22/24 16:43	241122A11

Organics - Volatiles, Prep Batch ID: VS241120W2

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S68583.01	1,4-Dioxane	SW8260B - SIM	11/21/24 08:23	241120D9
S68583.02	1,4-Dioxane	SW8260B - SIM	11/21/24 11:20	241120D9
S68583.03	1,4-Dioxane	SW8260B - SIM	11/21/24 13:01	241120D9
S68583.04	1,4-Dioxane	SW8260B - SIM	11/21/24 13:51	241120D9
S68583.05	1,4-Dioxane	SW8260B - SIM	11/21/24 14:41	241120D9

QC Report - Surrogates per Lab Sample

Lab Sample ID: S68583.03

Sample Tag: MW-22-153_111224

Collected Date/Time: 11/12/2024 14:30

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 241115C7, Run Date: 11/16/2024 17:36, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**100.6**	80.0	124.0
1,2-Dichloroethane-D4		**98.1**	72.0	125.0
Toluene-D8		**96.0**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S68583.04

Sample Tag: MW-22-156_111224

Collected Date/Time: 11/12/2024 15:55

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 241122A11, Run Date: 11/22/2024 16:43, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**99.2**	80.0	124.0
1,2-Dichloroethane-D4		**100.5**	72.0	125.0
Toluene-D8		**99.9**	89.0	112.0

Organics - Volatiles, Prep Batch ID: VF241115W5

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 241115C7.BLKW15C

Run in Batch: 241115C7, Run Date: 11/16/2024 13:38, Prep Date: 11/15/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**100.4**	80.0	124.0
1,2-Dichloroethane-D4		**95.9**	72.0	125.0
Toluene-D8		**94.9**	89.0	112.0

Laboratory Control Sample (LCS)

Lab Sample ID: 241115C7.LCSW15C

Run in Batch: 241115C7, Run Date: 11/16/2024 12:04, Prep Date: 11/15/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**100.8**	80.0	124.0
1,2-Dichloroethane-D4		**99.8**	72.0	125.0
Toluene-D8		**96.6**	89.0	112.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241115C7.LCSDW15C, Parent Sample ID: 241115C7.LCSW15C

Run in Batch: 241115C7, Run Date: 11/16/2024 12:28, Prep Date: 11/15/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**101.3**	80.0	124.0
1,2-Dichloroethane-D4		**96.8**	72.0	125.0
Toluene-D8		**95.8**	89.0	112.0

Organics - Volatiles, Prep Batch ID: VF241122W2

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 241122A11.BLKW22A

Run in Batch: 241122A11, Run Date: 11/22/2024 14:24, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**97.9**	80.0	124.0
1,2-Dichloroethane-D4		**101.5**	72.0	125.0
Toluene-D8		**99.6**	89.0	112.0

Laboratory Control Sample (LCS)

Lab Sample ID: 241122A11.LCSW22A

Run in Batch: 241122A11, Run Date: 11/22/2024 12:04, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**98.7**	80.0	124.0
1,2-Dichloroethane-D4		**92.6**	72.0	125.0
Toluene-D8		**99.1**	89.0	112.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241122A11.LCSDW22A, Parent Sample ID: 241122A11.LCSW22A

Run in Batch: 241122A11, Run Date: 11/22/2024 12:27, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**99.2**	80.0	124.0
1,2-Dichloroethane-D4		**98.3**	72.0	125.0
Toluene-D8		**99.1**	89.0	112.0

Matrix Spike (MS)

Lab Sample ID: 241122A11.6876902M, Parent Sample ID: S68769.01

Run in Batch: 241122A11, Run Date: 11/22/2024 12:51, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**99.8**	80.0	124.0
1,2-Dichloroethane-D4		**102.8**	72.0	125.0
Toluene-D8		**100.3**	89.0	112.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 241122A11.6876903N, Parent Sample ID: 241122A11.6876902M

Run in Batch: 241122A11, Run Date: 11/22/2024 13:14, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**97.6**	80.0	124.0
1,2-Dichloroethane-D4		**96.1**	72.0	125.0
Toluene-D8		**99.6**	89.0	112.0

Organics - Volatiles, Prep Batch ID: VS241120W2

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 241120D9.BLKW20D

Run in Batch: 241120D9, Run Date: 11/21/2024 07:57, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample (LCS)

Lab Sample ID: 241120D9.LCSW20D

Run in Batch: 241120D9, Run Date: 11/21/2024 05:26, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241120D9.LCSDW20D, Parent Sample ID: 241120D9.LCSW20D

Run in Batch: 241120D9, Run Date: 11/21/2024 05:51, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Matrix Spike (MS)

Lab Sample ID: 241120D9.6858404M, Parent Sample ID: S68584.03

Run in Batch: 241120D9, Run Date: 11/21/2024 06:16, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Matrix Spike Duplicate (MSD)

Lab Sample ID: 241120D9.6858405N, Parent Sample ID: 241120D9.6858404M

Run in Batch: 241120D9, Run Date: 11/21/2024 06:42, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Lab Sample ID: S68583.01

Sample Tag: MW-21-139_111224

Collected Date/Time: 11/12/2024 11:10

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 241120D9, Run Date: 11/21/2024 08:23, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**95.8**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S68583.02

Sample Tag: MW-14-58R_111224

Collected Date/Time: 11/12/2024 13:15

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 241120D9, Run Date: 11/21/2024 11:20, Matrix: WW, Dilution: 10

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**100.0**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S68583.03

Sample Tag: MW-22-153_111224

Collected Date/Time: 11/12/2024 14:30

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 241120D9, Run Date: 11/21/2024 13:01, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**107.5**	50.0	200.0

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 241115C7, Run Date: 11/16/2024 17:36, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**102.0**	50.0	200.0
1,4-Difluorobenzene		**105.6**	50.0	200.0
Chlorobenzene-D5		**101.4**	50.0	200.0
1,4-Dichlorobenzene-D4		**104.3**	50.0	200.0

Lab Sample ID: S68583.04

Sample Tag: MW-22-156_111224

Collected Date/Time: 11/12/2024 15:55

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 241120D9, Run Date: 11/21/2024 13:51, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**109.9**	50.0	200.0

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 241122A11, Run Date: 11/22/2024 16:43, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**93.8**	50.0	200.0
1,4-Difluorobenzene		**94.9**	50.0	200.0
Chlorobenzene-D5		**94.3**	50.0	200.0
1,4-Dichlorobenzene-D4		**92.3**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S68583.05

Sample Tag: MW-22-155_111324

Collected Date/Time: 11/13/2024 10:00

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 241120D9, Run Date: 11/21/2024 14:41, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**105.7**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VF241115W5

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 241115C7.BLKW15C

Run in Batch: 241115C7, Run Date: 11/16/2024 13:38, Prep Date: 11/15/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**104.6**	50.0	200.0
1,4-Difluorobenzene		**105.6**	50.0	200.0
Chlorobenzene-D5		**100.1**	50.0	200.0
1,4-Dichlorobenzene-D4		**102.2**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 241115C7.LCSW15C

Run in Batch: 241115C7, Run Date: 11/16/2024 12:04, Prep Date: 11/15/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**102.5**	50.0	200.0
1,4-Difluorobenzene		**102.6**	50.0	200.0
Chlorobenzene-D5		**99.6**	50.0	200.0
1,4-Dichlorobenzene-D4		**101.7**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241115C7.LCSDW15C, Parent Sample ID: 241115C7.LCSW15C

Run in Batch: 241115C7, Run Date: 11/16/2024 12:28, Prep Date: 11/15/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**102.0**	50.0	200.0
1,4-Difluorobenzene		**101.0**	50.0	200.0
Chlorobenzene-D5		**96.8**	50.0	200.0
1,4-Dichlorobenzene-D4		**98.6**	50.0	200.0

QC Report - Internal Standards per QC Sample

Organics - Volatiles, Prep Batch ID: VF241122W2

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 241122A11.BLKW22A

Run in Batch: 241122A11, Run Date: 11/22/2024 14:24, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**98.9**	50.0	200.0
1,4-Difluorobenzene		**99.9**	50.0	200.0
Chlorobenzene-D5		**100.0**	50.0	200.0
1,4-Dichlorobenzene-D4		**97.0**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 241122A11.LCSW22A

Run in Batch: 241122A11, Run Date: 11/22/2024 12:04, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**99.4**	50.0	200.0
1,4-Difluorobenzene		**99.6**	50.0	200.0
Chlorobenzene-D5		**98.5**	50.0	200.0
1,4-Dichlorobenzene-D4		**98.2**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241122A11.LCSDW22A, Parent Sample ID: 241122A11.LCSW22A

Run in Batch: 241122A11, Run Date: 11/22/2024 12:27, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**99.5**	50.0	200.0
1,4-Difluorobenzene		**100.6**	50.0	200.0
Chlorobenzene-D5		**101.0**	50.0	200.0
1,4-Dichlorobenzene-D4		**101.2**	50.0	200.0

Matrix Spike (MS)

Lab Sample ID: 241122A11.6876902M, Parent Sample ID: S68769.01

Run in Batch: 241122A11, Run Date: 11/22/2024 12:51, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**96.8**	50.0	200.0
1,4-Difluorobenzene		**99.0**	50.0	200.0
Chlorobenzene-D5		**101.6**	50.0	200.0
1,4-Dichlorobenzene-D4		**103.3**	50.0	200.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 241122A11.6876903N, Parent Sample ID: 241122A11.6876902M

Run in Batch: 241122A11, Run Date: 11/22/2024 13:14, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**96.0**	50.0	200.0
1,4-Difluorobenzene		**96.5**	50.0	200.0
Chlorobenzene-D5		**97.3**	50.0	200.0
1,4-Dichlorobenzene-D4		**95.9**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VS241120W2

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 241120D9.BLKW20D

Run in Batch: 241120D9, Run Date: 11/21/2024 07:57, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**94.1**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 241120D9.LCSW20D

Run in Batch: 241120D9, Run Date: 11/21/2024 05:26, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**109.1**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241120D9.LCSDW20D, Parent Sample ID: 241120D9.LCSW20D

Run in Batch: 241120D9, Run Date: 11/21/2024 05:51, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**96.4**	50.0	200.0

Matrix Spike (MS)

Lab Sample ID: 241120D9.6858404M, Parent Sample ID: S68584.03

Run in Batch: 241120D9, Run Date: 11/21/2024 06:16, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**100.7**	50.0	200.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 241120D9.6858405N, Parent Sample ID: 241120D9.6858404M

Run in Batch: 241120D9, Run Date: 11/21/2024 06:42, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**102.2**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VF241115W5

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 241115C7.BLKW15C

Run in Batch: 241115C7, Run Date: 11/16/2024 13:38, Prep Date: 11/15/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Diethyl ether		ND	1.00	ug/l
Acetone		ND	10.00	ug/l
Methyl iodide		ND	1.00	ug/l
Carbon disulfide		ND	1.00	ug/l
tert-Methyl butyl ether (MTBE)		ND	1.00	ug/l
Acrylonitrile		ND	1.00	ug/l
2-Butanone (MEK)		ND	10.00	ug/l
Dichlorodifluoromethane		ND	1.00	ug/l
Chloromethane		ND	1.00	ug/l
Vinyl chloride		ND	1.00	ug/l
Bromomethane		ND	1.00	ug/l
Chloroethane		ND	1.00	ug/l
Trichlorofluoromethane		ND	1.00	ug/l
1,1-Dichloroethene		ND	1.00	ug/l
Methylene chloride		ND	1.00	ug/l
trans-1,2-Dichloroethene		ND	1.00	ug/l
1,1-Dichloroethane		ND	1.00	ug/l
cis-1,2-Dichloroethene		ND	1.00	ug/l
Tetrahydrofuran		ND	10.00	ug/l
Chloroform		ND	1.00	ug/l
Bromochloromethane		ND	1.00	ug/l
1,1,1-Trichloroethane		ND	1.00	ug/l
4-Methyl-2-pentanone (MIBK)		ND	10.00	ug/l
2-Hexanone		ND	10.00	ug/l
Carbon tetrachloride		ND	1.00	ug/l
Benzene		ND	1.00	ug/l
1,2-Dichloroethane		ND	1.00	ug/l
Trichloroethene		ND	1.00	ug/l
1,2-Dichloropropane		ND	1.00	ug/l
Bromodichloromethane		ND	1.00	ug/l
Dibromomethane		ND	1.00	ug/l
cis-1,3-Dichloropropene		ND	1.00	ug/l
Toluene		ND	1.00	ug/l
trans-1,3-Dichloropropene		ND	1.00	ug/l
1,1,2-Trichloroethane		ND	1.00	ug/l
Tetrachloroethene		ND	1.00	ug/l
trans-1,4-Dichloro-2-butene		ND	1.00	ug/l
Dibromochloromethane		ND	1.00	ug/l
1,2-Dibromoethane		ND	1.00	ug/l
Chlorobenzene		ND	1.00	ug/l
1,1,1,2-Tetrachloroethane		ND	1.00	ug/l
Ethylbenzene		ND	1.00	ug/l
p,m-Xylene		ND	2.00	ug/l
o-Xylene		ND	1.00	ug/l
Styrene		ND	1.00	ug/l
Isopropylbenzene		ND	1.00	ug/l

Organics - Volatiles, Prep Batch ID: VF241115W5 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK) (continued)

Lab Sample ID: 241115C7.BLKW15C

Run in Batch: 241115C7, Run Date: 11/16/2024 13:38, Prep Date: 11/15/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Bromoform		ND	1.00	ug/l
1,1,2,2-Tetrachloroethane		ND	1.00	ug/l
1,2,3-Trichloropropane		ND	1.00	ug/l
n-Propylbenzene		ND	1.00	ug/l
Bromobenzene		ND	1.00	ug/l
1,3,5-Trimethylbenzene		ND	1.00	ug/l
tert-Butylbenzene		ND	1.00	ug/l
1,2,4-Trimethylbenzene		ND	1.00	ug/l
sec-Butylbenzene		ND	1.00	ug/l
p-Isopropyltoluene		ND	1.00	ug/l
1,3-Dichlorobenzene		ND	1.00	ug/l
1,4-Dichlorobenzene		ND	1.00	ug/l
1,2-Dichlorobenzene		ND	1.00	ug/l
1,2,3-Trimethylbenzene		ND	1.00	ug/l
n-Butylbenzene		ND	1.00	ug/l
Hexachloroethane		ND	1.00	ug/l
1,2-Dibromo-3-chloropropane		ND	1.00	ug/l
1,2,4-Trichlorobenzene		ND	1.00	ug/l
1,2,3-Trichlorobenzene		ND	1.00	ug/l
Naphthalene		ND	1.00	ug/l
2-Methylnaphthalene		ND	1.00	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 241115C7.LCSW15C

Run in Batch: 241115C7, Run Date: 11/16/2024 12:04, Prep Date: 11/15/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Diethyl ether		102.8	67.4	121.2
Acetone		139.6	29.9	161.5
Methyl iodide		95.1	68.8	116.4
Carbon disulfide		91.8	63.8	137.4
tert-Methyl butyl ether (MTBE)		96.9	73.2	122.4
Acrylonitrile		108.6	69.9	128.9
2-Butanone (MEK)		109.1	44.0	134.4
Dichlorodifluoromethane		99.7	10.0	222.8
Chloromethane		95.2	23.8	166.5
Vinyl chloride		94.3	43.5	149.1
Bromomethane		92.1	56.8	151.3
Chloroethane		95.2	53.4	149.4
Trichlorofluoromethane		100.3	59.7	151.8
1,1-Dichloroethene		96.3	69.6	139.4
Methylene chloride		95.7	73.3	121.1
trans-1,2-Dichloroethene		90.5	73.6	129.3
1,1-Dichloroethane		94.6	71.5	126.2
cis-1,2-Dichloroethene		93.4	76.6	122.1
Tetrahydrofuran		101.3	59.0	117.9
Chloroform		96.9	78.4	124.0

Organics - Volatiles, Prep Batch ID: VF241115W5 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 241115C7.LCSW15C

Run in Batch: 241115C7, Run Date: 11/16/2024 12:04, Prep Date: 11/15/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Bromochloromethane		97.0	78.2	120.8
1,1,1-Trichloroethane		95.3	79.4	130.9
4-Methyl-2-pentanone (MIBK)		99.5	71.6	125.2
2-Hexanone		101.6	55.4	136.9
Carbon tetrachloride		93.0	72.6	133.0
Benzene		95.0	79.9	124.9
1,2-Dichloroethane		93.2	76.0	126.3
Trichloroethene		92.1	79.7	124.2
1,2-Dichloropropane		94.6	78.6	126.4
Bromodichloromethane		97.7	80.4	128.2
Dibromomethane		97.7	76.9	122.1
cis-1,3-Dichloropropene		87.5	79.8	129.9
Toluene		94.9	79.8	124.5
trans-1,3-Dichloropropene		86.4	74.0	131.3
1,1,2-Trichloroethane		97.0	78.7	123.1
Tetrachloroethene		93.1	74.5	124.5
trans-1,4-Dichloro-2-butene		90.0	68.6	135.4
Dibromochloromethane		100.5	74.6	127.2
1,2-Dibromoethane		99.9	70.3	133.7
Chlorobenzene		95.9	79.2	122.7
1,1,1,2-Tetrachloroethane		98.9	80.3	128.2
Ethylbenzene		98.3	79.5	129.1
p,m-Xylene		97.2	79.4	132.2
o-Xylene		96.7	80.2	131.0
Styrene		97.6	69.5	126.7
Isopropylbenzene		97.7	74.4	121.5
Bromoform		100.7	69.4	128.0
1,1,2,2-Tetrachloroethane		99.3	79.8	126.3
1,2,3-Trichloropropane		104.0	78.3	138.8
n-Propylbenzene		95.0	82.0	130.7
Bromobenzene		99.3	78.7	124.6
1,3,5-Trimethylbenzene		95.6	81.3	128.9
tert-Butylbenzene		92.4	80.7	128.9
1,2,4-Trimethylbenzene		96.1	81.4	130.8
sec-Butylbenzene		89.1	77.4	129.8
p-Isopropyltoluene		88.1	79.8	137.5
1,3-Dichlorobenzene		92.6	77.0	131.3
1,4-Dichlorobenzene		91.3	20.7	137.7
1,2-Dichlorobenzene		96.6	10.0	166.2
1,2,3-Trimethylbenzene		94.4	76.3	124.2
n-Butylbenzene		83.5	80.0	133.3
Hexachloroethane		91.7	23.8	138.1
1,2-Dibromo-3-chloropropane		109.7	21.2	189.4
1,2,4-Trichlorobenzene		94.1	27.4	143.4
1,2,3-Trichlorobenzene		99.8	75.4	131.4
Naphthalene		104.9	32.9	135.8

Organics - Volatiles, Prep Batch ID: VF241115W5 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 241115C7.LCSW15C

Run in Batch: 241115C7, Run Date: 11/16/2024 12:04, Prep Date: 11/15/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
2-Methylnaphthalene		111.6	25.5	165.5

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241115C7.LCSDW15C, Parent Sample ID: 241115C7.LCSW15C

Run in Batch: 241115C7, Run Date: 11/16/2024 12:28, Prep Date: 11/15/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Diethyl ether		102.0	67.4	121.2	0.7	30.0
Acetone		135.9	29.9	161.5	2.7	30.0
Methyl iodide		93.6	68.8	116.4	1.6	30.0
Carbon disulfide		90.7	63.8	137.4	1.2	30.0
tert-Methyl butyl ether (MTBE)		96.2	73.2	122.4	0.7	30.0
Acrylonitrile		109.2	69.9	128.9	0.6	30.0
2-Butanone (MEK)		109.2	44.0	134.4	0.1	30.0
Dichlorodifluoromethane		97.1	10.0	222.8	2.7	30.0
Chloromethane		92.7	23.8	166.5	2.7	30.0
Vinyl chloride		90.5	43.5	149.1	4.1	30.0
Bromomethane		88.6	56.8	151.3	3.9	30.0
Chloroethane		92.3	53.4	149.4	3.1	30.0
Trichlorofluoromethane		97.9	59.7	151.8	2.4	30.0
1,1-Dichloroethene		95.1	69.6	139.4	1.2	30.0
Methylene chloride		94.2	73.3	121.1	1.6	30.0
trans-1,2-Dichloroethene		88.0	73.6	129.3	2.9	30.0
1,1-Dichloroethane		92.7	71.5	126.2	2.1	30.0
cis-1,2-Dichloroethene		91.5	76.6	122.1	2.0	30.0
Tetrahydrofuran		98.8	59.0	117.9	2.5	30.0
Chloroform		95.5	78.4	124.0	1.4	30.0
Bromochloromethane		95.5	78.2	120.8	1.5	30.0
1,1,1-Trichloroethane		93.8	79.4	130.9	1.5	30.0
4-Methyl-2-pentanone (MIBK)		100.8	71.6	125.2	1.3	30.0
2-Hexanone		103.6	55.4	136.9	2.0	30.0
Carbon tetrachloride		93.1	72.6	133.0	0.1	30.0
Benzene		94.4	79.9	124.9	0.6	30.0
1,2-Dichloroethane		92.8	76.0	126.3	0.4	30.0
Trichloroethene		91.3	79.7	124.2	0.9	30.0
1,2-Dichloropropane		94.0	78.6	126.4	0.6	30.0
Bromodichloromethane		97.4	80.4	128.2	0.3	30.0
Dibromomethane		97.8	76.9	122.1	0.1	30.0
cis-1,3-Dichloropropene		87.4	79.8	129.9	0.2	30.0
Toluene		94.0	79.8	124.5	0.9	30.0
trans-1,3-Dichloropropene		86.7	74.0	131.3	0.4	30.0
1,1,2-Trichloroethane		97.7	78.7	123.1	0.7	30.0
Tetrachloroethene		92.4	74.5	124.5	0.7	30.0
trans-1,4-Dichloro-2-butene		92.6	68.6	135.4	2.8	30.0
Dibromochloromethane		102.0	74.6	127.2	1.5	30.0
1,2-Dibromoethane		100.9	70.3	133.7	1.0	30.0
Chlorobenzene		96.6	79.2	122.7	0.7	30.0

Organics - Volatiles, Prep Batch ID: VF241115W5 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: 241115C7.LCSDW15C, Parent Sample ID: 241115C7.LCSW15C

Run in Batch: 241115C7, Run Date: 11/16/2024 12:28, Prep Date: 11/15/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,1,1,2-Tetrachloroethane		99.8	80.3	128.2	0.9	30.0
Ethylbenzene		97.8	79.5	129.1	0.6	30.0
p,m-Xylene		97.0	79.4	132.2	0.2	30.0
o-Xylene		97.3	80.2	131.0	0.6	30.0
Styrene		97.1	69.5	126.7	0.5	30.0
Isopropylbenzene		96.7	74.4	121.5	1.0	30.0
Bromoform		105.5	69.4	128.0	4.7	30.0
1,1,2,2-Tetrachloroethane		102.8	79.8	126.3	3.5	30.0
1,2,3-Trichloropropane		105.9	78.3	138.8	1.8	30.0
n-Propylbenzene		92.0	82.0	130.7	3.2	30.0
Bromobenzene		98.8	78.7	124.6	0.6	30.0
1,3,5-Trimethylbenzene		94.5	81.3	128.9	1.2	30.0
tert-Butylbenzene		92.1	80.7	128.9	0.3	30.0
1,2,4-Trimethylbenzene		95.6	81.4	130.8	0.6	30.0
sec-Butylbenzene		88.9	77.4	129.8	0.2	30.0
p-Isopropyltoluene		88.1	79.8	137.5	0.0	30.0
1,3-Dichlorobenzene		92.0	77.0	131.3	0.7	30.0
1,4-Dichlorobenzene		92.0	20.7	137.7	0.8	30.0
1,2-Dichlorobenzene		96.3	10.0	166.2	0.4	30.0
1,2,3-Trimethylbenzene		95.7	76.3	124.2	1.4	30.0
n-Butylbenzene		83.9	80.0	133.3	0.5	30.0
Hexachloroethane		91.9	23.8	138.1	0.2	30.0
1,2-Dibromo-3-chloropropane		113.5	21.2	189.4	3.4	30.0
1,2,4-Trichlorobenzene		95.7	27.4	143.4	1.7	30.0
1,2,3-Trichlorobenzene		100.7	75.4	131.4	1.0	30.0
Naphthalene		107.2	32.9	135.8	2.2	30.0
2-Methylnaphthalene		115.8	25.5	165.5	3.7	30.0

Organics - Volatiles, Prep Batch ID: VF241122W2

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 241122A11.BLKW22A

Run in Batch: 241122A11, Run Date: 11/22/2024 14:24, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Diethyl ether		ND	1.00	ug/l
Acetone		ND	10.00	ug/l
Methyl iodide		ND	1.00	ug/l
Carbon disulfide		ND	1.00	ug/l
tert-Methyl butyl ether (MTBE)		ND	1.00	ug/l
Acrylonitrile		ND	1.00	ug/l
2-Butanone (MEK)		ND	10.00	ug/l
Dichlorodifluoromethane		ND	1.00	ug/l
Chloromethane		ND	1.00	ug/l
Vinyl chloride		ND	1.00	ug/l
Bromomethane		ND	1.00	ug/l
Chloroethane		ND	1.00	ug/l
Trichlorofluoromethane		ND	1.00	ug/l
1,1-Dichloroethene		ND	1.00	ug/l
Methylene chloride		ND	1.00	ug/l
trans-1,2-Dichloroethene		ND	1.00	ug/l
1,1-Dichloroethane		ND	1.00	ug/l
cis-1,2-Dichloroethene		ND	1.00	ug/l
Tetrahydrofuran		ND	10.00	ug/l
Chloroform		ND	1.00	ug/l
Bromochloromethane		ND	1.00	ug/l
1,1,1-Trichloroethane		ND	1.00	ug/l
4-Methyl-2-pentanone (MIBK)		ND	10.00	ug/l
2-Hexanone		ND	10.00	ug/l
Carbon tetrachloride		ND	1.00	ug/l
Benzene		ND	1.00	ug/l
1,2-Dichloroethane		ND	1.00	ug/l
Trichloroethene		ND	1.00	ug/l
1,2-Dichloropropane		ND	1.00	ug/l
Bromodichloromethane		ND	1.00	ug/l
Dibromomethane		ND	1.00	ug/l
cis-1,3-Dichloropropene		ND	1.00	ug/l
Toluene		ND	1.00	ug/l
trans-1,3-Dichloropropene		ND	1.00	ug/l
1,1,2-Trichloroethane		ND	1.00	ug/l
Tetrachloroethene		ND	1.00	ug/l
trans-1,4-Dichloro-2-butene		ND	1.00	ug/l
Dibromochloromethane		ND	1.00	ug/l
1,2-Dibromoethane		ND	1.00	ug/l
Chlorobenzene		ND	1.00	ug/l
1,1,1,2-Tetrachloroethane		ND	1.00	ug/l
Ethylbenzene		ND	1.00	ug/l
p,m-Xylene		ND	2.00	ug/l
o-Xylene		ND	1.00	ug/l
Styrene		ND	1.00	ug/l
Isopropylbenzene		ND	1.00	ug/l

Organics - Volatiles, Prep Batch ID: VF241122W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK) (continued)

Lab Sample ID: 241122A11.BLKW22A

Run in Batch: 241122A11, Run Date: 11/22/2024 14:24, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Bromoform		ND	1.00	ug/l
1,1,2,2-Tetrachloroethane		ND	1.00	ug/l
1,2,3-Trichloropropane		ND	1.00	ug/l
n-Propylbenzene		ND	1.00	ug/l
Bromobenzene		ND	1.00	ug/l
1,3,5-Trimethylbenzene		ND	1.00	ug/l
tert-Butylbenzene		ND	1.00	ug/l
1,2,4-Trimethylbenzene		ND	1.00	ug/l
sec-Butylbenzene		ND	1.00	ug/l
p-Isopropyltoluene		ND	1.00	ug/l
1,3-Dichlorobenzene		ND	1.00	ug/l
1,4-Dichlorobenzene		ND	1.00	ug/l
1,2-Dichlorobenzene		ND	1.00	ug/l
1,2,3-Trimethylbenzene		ND	1.00	ug/l
n-Butylbenzene		ND	1.00	ug/l
Hexachloroethane		ND	1.00	ug/l
1,2-Dibromo-3-chloropropane		ND	1.00	ug/l
1,2,4-Trichlorobenzene		ND	1.00	ug/l
1,2,3-Trichlorobenzene		ND	1.00	ug/l
Naphthalene		ND	1.00	ug/l
2-Methylnaphthalene		ND	1.00	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 241122A11.LCSW22A

Run in Batch: 241122A11, Run Date: 11/22/2024 12:04, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Diethyl ether		103.9	67.4	121.2
Acetone		100.6	29.9	161.5
Methyl iodide		104.0	68.8	116.4
Carbon disulfide		103.8	63.8	137.4
tert-Methyl butyl ether (MTBE)		105.5	73.2	122.4
Acrylonitrile		104.5	69.9	128.9
2-Butanone (MEK)		94.7	44.0	134.4
Dichlorodifluoromethane		100.1	10.0	222.8
Chloromethane		107.9	23.8	166.5
Vinyl chloride		103.0	43.5	149.1
Bromomethane		127.3	56.8	151.3
Chloroethane		98.5	53.4	149.4
Trichlorofluoromethane		97.5	59.7	151.8
1,1-Dichloroethene		101.0	69.6	139.4
Methylene chloride		102.7	73.3	121.1
trans-1,2-Dichloroethene		105.7	73.6	129.3
1,1-Dichloroethane		105.2	71.5	126.2
cis-1,2-Dichloroethene		105.9	76.6	122.1
Tetrahydrofuran		96.1	59.0	117.9
Chloroform		105.7	78.4	124.0

Organics - Volatiles, Prep Batch ID: VF241122W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 241122A11.LCSW22A

Run in Batch: 241122A11, Run Date: 11/22/2024 12:04, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Bromochloromethane		104.0	78.2	120.8
1,1,1-Trichloroethane		102.3	79.4	130.9
4-Methyl-2-pentanone (MIBK)		99.6	71.6	125.2
2-Hexanone		101.3	55.4	136.9
Carbon tetrachloride		101.2	72.6	133.0
Benzene		105.1	79.9	124.9
1,2-Dichloroethane		104.1	76.0	126.3
Trichloroethene		104.9	79.7	124.2
1,2-Dichloropropane		107.0	78.6	126.4
Bromodichloromethane		107.2	80.4	128.2
Dibromomethane		102.6	76.9	122.1
cis-1,3-Dichloropropene		106.6	79.8	129.9
Toluene		105.7	79.8	124.5
trans-1,3-Dichloropropene		107.2	74.0	131.3
1,1,2-Trichloroethane		106.2	78.7	123.1
Tetrachloroethene		102.7	74.5	124.5
trans-1,4-Dichloro-2-butene		117.7	68.6	135.4
Dibromochloromethane		105.5	74.6	127.2
1,2-Dibromoethane		105.9	70.3	133.7
Chlorobenzene		107.8	79.2	122.7
1,1,1,2-Tetrachloroethane		105.5	80.3	128.2
Ethylbenzene		109.1	79.5	129.1
p,m-Xylene		109.5	79.4	132.2
o-Xylene		110.4	80.2	131.0
Styrene		109.0	69.5	126.7
Isopropylbenzene		109.6	74.4	121.5
Bromoform		105.6	69.4	128.0
1,1,2,2-Tetrachloroethane		105.1	79.8	126.3
1,2,3-Trichloropropane		106.1	78.3	138.8
n-Propylbenzene		111.7	82.0	130.7
Bromobenzene		108.5	78.7	124.6
1,3,5-Trimethylbenzene		110.2	81.3	128.9
tert-Butylbenzene		110.5	80.7	128.9
1,2,4-Trimethylbenzene		109.8	81.4	130.8
sec-Butylbenzene		112.0	77.4	129.8
p-Isopropyltoluene		114.2	79.8	137.5
1,3-Dichlorobenzene		112.9	77.0	131.3
1,4-Dichlorobenzene		112.4	20.7	137.7
1,2-Dichlorobenzene		112.3	10.0	166.2
1,2,3-Trimethylbenzene		115.6	76.3	124.2
n-Butylbenzene		116.5	80.0	133.3
Hexachloroethane		118.0	23.8	138.1
1,2-Dibromo-3-chloropropane		106.6	21.2	189.4
1,2,4-Trichlorobenzene		114.7	27.4	143.4
1,2,3-Trichlorobenzene		113.0	75.4	131.4
Naphthalene		110.3	32.9	135.8

Organics - Volatiles, Prep Batch ID: VF241122W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 241122A11.LCSW22A

Run in Batch: 241122A11, Run Date: 11/22/2024 12:04, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
2-Methylnaphthalene		111.5	25.5	165.5

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241122A11.LCSDW22A, Parent Sample ID: 241122A11.LCSW22A

Run in Batch: 241122A11, Run Date: 11/22/2024 12:27, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Diethyl ether		102.7	67.4	121.2	1.1	30.0
Acetone		100.9	29.9	161.5	0.2	30.0
Methyl iodide		100.2	68.8	116.4	3.7	30.0
Carbon disulfide		98.5	63.8	137.4	5.2	30.0
tert-Methyl butyl ether (MTBE)		104.7	73.2	122.4	0.8	30.0
Acrylonitrile		106.0	69.9	128.9	1.4	30.0
2-Butanone (MEK)		99.7	44.0	134.4	5.2	30.0
Dichlorodifluoromethane		94.5	10.0	222.8	5.7	30.0
Chloromethane		100.7	23.8	166.5	6.9	30.0
Vinyl chloride		97.0	43.5	149.1	6.0	30.0
Bromomethane		124.6	56.8	151.3	2.1	30.0
Chloroethane		95.5	53.4	149.4	3.2	30.0
Trichlorofluoromethane		92.9	59.7	151.8	4.9	30.0
1,1-Dichloroethene		96.1	69.6	139.4	5.0	30.0
Methylene chloride		101.3	73.3	121.1	1.4	30.0
trans-1,2-Dichloroethene		102.2	73.6	129.3	3.4	30.0
1,1-Dichloroethane		101.8	71.5	126.2	3.3	30.0
cis-1,2-Dichloroethene		102.2	76.6	122.1	3.5	30.0
Tetrahydrofuran		101.1	59.0	117.9	5.1	30.0
Chloroform		103.4	78.4	124.0	2.1	30.0
Bromochloromethane		103.2	78.2	120.8	0.8	30.0
1,1,1-Trichloroethane		98.6	79.4	130.9	3.8	30.0
4-Methyl-2-pentanone (MIBK)		101.4	71.6	125.2	1.8	30.0
2-Hexanone		102.3	55.4	136.9	1.0	30.0
Carbon tetrachloride		97.8	72.6	133.0	3.4	30.0
Benzene		100.8	79.9	124.9	4.2	30.0
1,2-Dichloroethane		101.5	76.0	126.3	2.5	30.0
Trichloroethene		100.1	79.7	124.2	4.7	30.0
1,2-Dichloropropane		103.0	78.6	126.4	3.8	30.0
Bromodichloromethane		103.9	80.4	128.2	3.2	30.0
Dibromomethane		101.2	76.9	122.1	1.4	30.0
cis-1,3-Dichloropropene		103.9	79.8	129.9	2.6	30.0
Toluene		101.7	79.8	124.5	3.9	30.0
trans-1,3-Dichloropropene		104.9	74.0	131.3	2.2	30.0
1,1,2-Trichloroethane		103.5	78.7	123.1	2.5	30.0
Tetrachloroethene		96.7	74.5	124.5	6.0	30.0
trans-1,4-Dichloro-2-butene		114.6	68.6	135.4	2.7	30.0
Dibromochloromethane		102.3	74.6	127.2	3.1	30.0
1,2-Dibromoethane		102.1	70.3	133.7	3.6	30.0
Chlorobenzene		101.9	79.2	122.7	5.6	30.0

Organics - Volatiles, Prep Batch ID: VF241122W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: 241122A11.LCSDW22A, Parent Sample ID: 241122A11.LCSW22A

Run in Batch: 241122A11, Run Date: 11/22/2024 12:27, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,1,1,2-Tetrachloroethane		101.3	80.3	128.2	4.1	30.0
Ethylbenzene		102.8	79.5	129.1	6.0	30.0
p,m-Xylene		103.4	79.4	132.2	5.8	30.0
o-Xylene		104.5	80.2	131.0	5.5	30.0
Styrene		104.1	69.5	126.7	4.7	30.0
Isopropylbenzene		103.7	74.4	121.5	5.5	30.0
Bromoform		104.7	69.4	128.0	0.9	30.0
1,1,2,2-Tetrachloroethane		104.6	79.8	126.3	0.5	30.0
1,2,3-Trichloropropane		105.2	78.3	138.8	0.9	30.0
n-Propylbenzene		104.6	82.0	130.7	6.6	30.0
Bromobenzene		104.0	78.7	124.6	4.2	30.0
1,3,5-Trimethylbenzene		102.9	81.3	128.9	6.9	30.0
tert-Butylbenzene		104.0	80.7	128.9	6.1	30.0
1,2,4-Trimethylbenzene		104.4	81.4	130.8	5.0	30.0
sec-Butylbenzene		104.9	77.4	129.8	6.5	30.0
p-Isopropyltoluene		106.5	79.8	137.5	7.0	30.0
1,3-Dichlorobenzene		107.0	77.0	131.3	5.3	30.0
1,4-Dichlorobenzene		106.3	20.7	137.7	5.5	30.0
1,2-Dichlorobenzene		105.9	10.0	166.2	5.8	30.0
1,2,3-Trimethylbenzene		108.9	76.3	124.2	5.9	30.0
n-Butylbenzene		107.6	80.0	133.3	8.0	30.0
Hexachloroethane		110.3	23.8	138.1	6.8	30.0
1,2-Dibromo-3-chloropropane		105.8	21.2	189.4	0.7	30.0
1,2,4-Trichlorobenzene		109.6	27.4	143.4	4.5	30.0
1,2,3-Trichlorobenzene		109.0	75.4	131.4	3.6	30.0
Naphthalene		108.6	32.9	135.8	1.5	30.0
2-Methylnaphthalene		112.1	25.5	165.5	0.5	30.0

Matrix Spike (MS)

Lab Sample ID: 241122A11.6876902M, Parent Sample ID: S68769.01

Run in Batch: 241122A11, Run Date: 11/22/2024 12:51, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Diethyl ether		104.8	67.4	121.2
Acetone		98.8	29.9	161.5
Methyl iodide		98.9	68.8	116.4
Carbon disulfide		103.9	63.8	137.4
tert-Methyl butyl ether (MTBE)		109.2	73.2	122.4
Acrylonitrile		109.1	69.9	128.9
2-Butanone (MEK)		101.1	44.0	134.4
Dichlorodifluoromethane		100.6	10.0	222.8
Chloromethane		105.3	23.8	166.5
Vinyl chloride		102.4	43.5	149.1
Bromomethane		125.0	56.8	151.3
Chloroethane		98.8	53.4	149.4
Trichlorofluoromethane		101.9	59.7	151.8
1,1-Dichloroethene		102.6	69.6	139.4

Organics - Volatiles, Prep Batch ID: VF241122W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Matrix Spike (MS) (continued)

Lab Sample ID: 241122A11.6876902M, Parent Sample ID: S68769.01

Run in Batch: 241122A11, Run Date: 11/22/2024 12:51, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Methylene chloride		105.3	73.3	121.1
trans-1,2-Dichloroethene		106.9	73.6	129.3
1,1-Dichloroethane		105.6	71.5	126.2
cis-1,2-Dichloroethene		106.2	76.6	122.1
Tetrahydrofuran		103.1	59.0	117.9
Chloroform		106.9	78.4	124.0
Bromochloromethane		105.8	78.2	120.8
1,1,1-Trichloroethane		103.9	79.4	130.9
4-Methyl-2-pentanone (MIBK)		114.6	71.6	125.2
2-Hexanone		117.3	55.4	136.9
Carbon tetrachloride		101.9	72.6	133.0
Benzene		103.9	79.9	124.9
1,2-Dichloroethane		103.5	76.0	126.3
Trichloroethene		104.0	79.7	124.2
1,2-Dichloropropane		106.2	78.6	126.4
Bromodichloromethane		106.9	80.4	128.2
Dibromomethane		103.6	76.9	122.1
cis-1,3-Dichloropropene		106.6	79.8	129.9
Toluene		104.9	79.8	124.5
trans-1,3-Dichloropropene		108.4	74.0	131.3
1,1,2-Trichloroethane		106.8	78.7	123.1
Tetrachloroethene		101.8	74.5	124.5
trans-1,4-Dichloro-2-butene		117.2	68.6	135.4
Dibromochloromethane		102.2	74.6	127.2
1,2-Dibromoethane		103.4	70.3	133.7
Chlorobenzene		103.1	79.2	122.7
1,1,1,2-Tetrachloroethane		101.3	80.3	128.2
Ethylbenzene		104.0	79.5	129.1
p,m-Xylene		104.1	79.4	132.2
o-Xylene		104.7	80.2	131.0
Styrene		104.1	69.5	126.7
Isopropylbenzene		104.0	74.4	121.5
Bromoform		102.6	69.4	128.0
1,1,2,2-Tetrachloroethane		105.2	79.8	126.3
1,2,3-Trichloropropane		105.5	78.3	138.8
n-Propylbenzene		105.7	82.0	130.7
Bromobenzene		104.5	78.7	124.6
1,3,5-Trimethylbenzene		103.9	81.3	128.9
tert-Butylbenzene		104.8	80.7	128.9
1,2,4-Trimethylbenzene		104.3	81.4	130.8
sec-Butylbenzene		103.7	77.4	129.8
p-Isopropyltoluene		104.2	79.8	137.5
1,3-Dichlorobenzene		106.0	77.0	131.3
1,4-Dichlorobenzene		106.3	20.7	137.7
1,2-Dichlorobenzene		105.5	10.0	166.2
1,2,3-Trimethylbenzene		107.4	76.3	124.2

Organics - Volatiles, Prep Batch ID: VF241122W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Matrix Spike (MS) (continued)

Lab Sample ID: 241122A11.6876902M, Parent Sample ID: S68769.01

Run in Batch: 241122A11, Run Date: 11/22/2024 12:51, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
n-Butylbenzene		106.2	80.0	133.3
Hexachloroethane		109.4	23.8	138.1
1,2-Dibromo-3-chloropropane		106.9	21.2	189.4
1,2,4-Trichlorobenzene		109.8	27.4	143.4
1,2,3-Trichlorobenzene		109.6	75.4	131.4
Naphthalene		111.4	32.9	135.8
2-Methylnaphthalene		121.0	25.5	165.5

Matrix Spike Duplicate (MSD)

Lab Sample ID: 241122A11.6876903N, Parent Sample ID: 241122A11.6876902M

Run in Batch: 241122A11, Run Date: 11/22/2024 13:14, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Diethyl ether		103.0	67.4	121.2	1.7	30.0
Acetone		97.5	29.9	161.5	1.3	30.0
Methyl iodide		98.1	68.8	116.4	0.9	30.0
Carbon disulfide		101.8	63.8	137.4	2.0	30.0
tert-Methyl butyl ether (MTBE)		105.9	73.2	122.4	3.1	30.0
Acrylonitrile		107.2	69.9	128.9	1.7	30.0
2-Butanone (MEK)		100.0	44.0	134.4	1.0	30.0
Dichlorodifluoromethane		98.6	10.0	222.8	2.0	30.0
Chloromethane		103.5	23.8	166.5	1.7	30.0
Vinyl chloride		100.3	43.5	149.1	2.1	30.0
Bromomethane		123.0	56.8	151.3	1.6	30.0
Chloroethane		96.9	53.4	149.4	2.0	30.0
Trichlorofluoromethane		98.4	59.7	151.8	3.5	30.0
1,1-Dichloroethene		101.2	69.6	139.4	1.4	30.0
Methylene chloride		102.0	73.3	121.1	3.2	30.0
trans-1,2-Dichloroethene		104.9	73.6	129.3	1.8	30.0
1,1-Dichloroethane		102.5	71.5	126.2	3.0	30.0
cis-1,2-Dichloroethene		104.5	76.6	122.1	1.6	30.0
Tetrahydrofuran		102.3	59.0	117.9	0.8	30.0
Chloroform		105.5	78.4	124.0	1.3	30.0
Bromochloromethane		102.5	78.2	120.8	3.2	30.0
1,1,1-Trichloroethane		101.4	79.4	130.9	2.4	30.0
4-Methyl-2-pentanone (MIBK)		115.6	71.6	125.2	0.8	30.0
2-Hexanone		118.2	55.4	136.9	0.8	30.0
Carbon tetrachloride		102.8	72.6	133.0	0.9	30.0
Benzene		103.5	79.9	124.9	0.4	30.0
1,2-Dichloroethane		103.1	76.0	126.3	0.4	30.0
Trichloroethene		103.4	79.7	124.2	0.6	30.0
1,2-Dichloropropane		104.7	78.6	126.4	1.5	30.0
Bromodichloromethane		105.8	80.4	128.2	1.0	30.0
Dibromomethane		103.5	76.9	122.1	0.1	30.0
cis-1,3-Dichloropropene		104.9	79.8	129.9	1.6	30.0
Toluene		104.3	79.8	124.5	0.6	30.0
trans-1,3-Dichloropropene		106.9	74.0	131.3	1.4	30.0

Organics - Volatiles, Prep Batch ID: VF241122W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Matrix Spike Duplicate (MSD) (continued)

Lab Sample ID: 241122A11.6876903N, Parent Sample ID: 241122A11.6876902M

Run in Batch: 241122A11, Run Date: 11/22/2024 13:14, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,1,2-Trichloroethane		105.8	78.7	123.1	1.0	30.0
Tetrachloroethene		101.2	74.5	124.5	0.5	30.0
trans-1,4-Dichloro-2-butene		116.0	68.6	135.4	1.0	30.0
Dibromochloromethane		102.8	74.6	127.2	0.6	30.0
1,2-Dibromoethane		103.4	70.3	133.7	0.0	30.0
Chlorobenzene		103.4	79.2	122.7	0.2	30.0
1,1,1,2-Tetrachloroethane		102.1	80.3	128.2	0.7	30.0
Ethylbenzene		105.6	79.5	129.1	1.5	30.0
p,m-Xylene		105.4	79.4	132.2	1.2	30.0
o-Xylene		106.1	80.2	131.0	1.3	30.0
Styrene		105.4	69.5	126.7	1.2	30.0
Isopropylbenzene		105.4	74.4	121.5	1.3	30.0
Bromoform		104.2	69.4	128.0	1.6	30.0
1,1,2,2-Tetrachloroethane		106.2	79.8	126.3	1.0	30.0
1,2,3-Trichloropropane		106.3	78.3	138.8	0.8	30.0
n-Propylbenzene		106.3	82.0	130.7	0.6	30.0
Bromobenzene		105.0	78.7	124.6	0.5	30.0
1,3,5-Trimethylbenzene		105.2	81.3	128.9	1.2	30.0
tert-Butylbenzene		106.1	80.7	128.9	1.2	30.0
1,2,4-Trimethylbenzene		104.8	81.4	130.8	0.4	30.0
sec-Butylbenzene		108.1	77.4	129.8	4.2	30.0
p-Isopropyltoluene		108.9	79.8	137.5	4.4	30.0
1,3-Dichlorobenzene		109.6	77.0	131.3	3.3	30.0
1,4-Dichlorobenzene		109.6	20.7	137.7	3.1	30.0
1,2-Dichlorobenzene		109.2	10.0	166.2	3.5	30.0
1,2,3-Trimethylbenzene		111.6	76.3	124.2	3.8	30.0
n-Butylbenzene		110.0	80.0	133.3	3.6	30.0
Hexachloroethane		114.2	23.8	138.1	4.3	30.0
1,2-Dibromo-3-chloropropane		112.2	21.2	189.4	4.8	30.0
1,2,4-Trichlorobenzene		113.8	27.4	143.4	3.5	30.0
1,2,3-Trichlorobenzene		113.3	75.4	131.4	3.3	30.0
Naphthalene		115.3	32.9	135.8	3.5	30.0
2-Methylnaphthalene		123.5	25.5	165.5	2.0	30.0

Organics - Volatiles, Prep Batch ID: VS241120W2

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 241120D9.BLKW20D

Run in Batch: 241120D9, Run Date: 11/21/2024 07:57, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
1,4-Dioxane		ND	1.00	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 241120D9.LCSW20D

Run in Batch: 241120D9, Run Date: 11/21/2024 05:26, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		99.1	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241120D9.LCSDW20D, Parent Sample ID: 241120D9.LCSW20D

Run in Batch: 241120D9, Run Date: 11/21/2024 05:51, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		110.4	70.0	130.0	10.8	30.0

Matrix Spike (MS)

Lab Sample ID: 241120D9.6858404M, Parent Sample ID: S68584.03

Run in Batch: 241120D9, Run Date: 11/21/2024 06:16, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		103.7	70.0	130.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 241120D9.6858405N, Parent Sample ID: 241120D9.6858404M

Run in Batch: 241120D9, Run Date: 11/21/2024 06:42, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		101.6	70.0	130.0	1.7	30.0

Merit Laboratories Login Checklist

Lab Set ID: S68583
Client: ARCADIS_NOVI (ARCADIS U.S., Inc.)
Project: 30214036.0470A / RACER Lansing GWS
Submitted: 11/14/2024 16:25 Login User: MMC

Attention: Kaitlyn Hunt
Address: Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 5.4
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[ ] Yes	[X] No	[ ] N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	[X] Yes	[ ] No	[ ] N/A	Do sample have correct chemical preservation	
11.	[ ] Yes	[ ] No	[X] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[ ] Yes	[X] No	[ ] N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[ ] Yes	[X] No	[ ] N/A	Samples require laboratory filtration	
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[X] No	[ ] N/A	Do water VOC, TOX, DO or Alkalinity bottles contain	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Plant 2

Merit Laboratories, Inc.
2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # _____ OF _____

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Tiffany Linder, Kaitlyn Hunt
COMPANY: Arcadis
ADDRESS: 28550 Cabot Drive, STE 500
CITY: Novi | STATE: MI | ZIP CODE: 48377
PHONE NO.: 947-777-5215 | FAX NO.: | P.O. NO.:
E-MAIL ADDRESS: kaitlyn.hunt@arcadis.com | QUOTE NO.:

INVOICE TO

CONTACT NAME: ☒ SAME
COMPANY:
ADDRESS:
CITY: | STATE: | ZIP CODE:
PHONE NO.: | E-MAIL ADDRESS: tiffany.linder@arcadis.com

PROJECT NO./NAME: 30214036.0470A / RACER Lansing GWS
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Jackie Schulz

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER _____

DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☒ EDD ☐ OTHER _____

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐ OHIO VAP ☐ Drinking Water ☐ DoD ☐ NPDES
Project Locations: ☐ Detroit ☐ New York ☐ Other _____
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	DATE	TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	1,4-Dioxane - 8260 SIMS	VOC - 8260 SIMS
68583.01	11/12/24	1110	MW-21-139_111224	GW	3		3						3	
.02	11/12/24	1315	MW-14-58R_111224	GW	3		3						3	
.03	11/12/24	1430	MW-22-153_111224	GW	3		3						3	3
.04	11/12/24	1555	MW-22-156_111224	GW	3		3						3	3
.05	11/13/24	1000	MW-22-155_111324	GW	3		3						3	

RELINQUISHED BY: SIGNATURE/ORGANIZATION: Donald Tucker/Arcadis ☐ Sampler	DATE: 11/14/24	TIME: 1625	
RECEIVED BY: SIGNATURE/ORGANIZATION: Johanne Murray	DATE: 11/14/24	TIME: 1625	
RELINQUISHED BY: SIGNATURE/ORGANIZATION:	DATE:	TIME:	
RECEIVED BY: SIGNATURE/ORGANIZATION:	DATE:	TIME:	

RELINQUISHED BY: SIGNATURE/ORGANIZATION:	DATE:	TIME:	
RECEIVED BY: SIGNATURE/ORGANIZATION:	DATE:	TIME:	

SEAL NO. | SEAL INTACT YES ☐ NO ☐ | INITIALS
SEAL NO. | SEAL INTACT YES ☐ NO ☐ | INITIALS

NOTES: TEMP. ON ARRIVAL 5.4

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

Analytical Laboratory Report

Report ID: S68584.01(01)+QC01
Generated on 11/25/2024

Report to

Attention: Kaitlyn Hunt
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 C:947-777-5215 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Addtional Contacts: Marina Samp, Tiffany Linder

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S68584.01-S68584.05
Project: 30214036.0470A / RACER Lansing GWS
Collected Date(s): 11/12/2024
Submitted Date/Time: 11/14/2024 16:25
Sampled by: Donald Richmond
P.O. #: 30214036.0470A

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Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Starred (*) analytes are not NY NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.
Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.
All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.
For a specific list of accredited analytes, please feel free to contact the laboratory or visit https://www.meritlabs.com/certifications.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
o	Associated EIS outside of control limits
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
q	Qualifier ion ratio outside of control limits
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
N/A	Not Applicable
SW8260B - SIM	SW 846 Method 8260B Revision 2 December 1996 SIMs

Sample Summary (5 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S68584.01	MW-20-130_111224	Groundwater	11/12/24 12:35
S68584.02	MW-21-140_111224	Groundwater	11/12/24 14:20
S68584.03	MW-16-85_111224	Groundwater	11/12/24 15:55
S68584.04	MW-16-85_111224 MS	Groundwater	11/12/24 15:55
S68584.05	MW-16-85_111224 MSD	Groundwater	11/12/24 15:55

Lab Sample ID: S68584.01
Sample Tag: MW-20-130_111224
Collected Date/Time: 11/12/2024 12:35
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/20/24 12:01	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/21/24 15:31, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	170	1		ug/L	1	123-91-1	

Lab Sample ID: S68584.02
Sample Tag: MW-21-140_111224
Collected Date/Time: 11/12/2024 14:20
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/20/24 12:01	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/21/24 08:48, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	Not detected	1		ug/L	1	123-91-1	

Lab Sample ID: S68584.03
Sample Tag: MW-16-85_111224
Collected Date/Time: 11/12/2024 15:55
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/20/24 12:01	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/21/24 10:54, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	8	1		ug/L	1	123-91-1	

Lab Sample ID: S68584.04
Sample Tag: MW-16-85_111224 MS
Collected Date/Time: 11/12/2024 15:55
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/20/24 12:01	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/21/24 06:16, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	60	1		ug/L	1	123-91-1	1

1-Spiked at 50 mg/L

Lab Sample ID: S68584.05
Sample Tag: MW-16-85_111224 MSD
Collected Date/Time: 11/12/2024 15:55
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/20/24 12:01	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/21/24 06:42, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	59	1		ug/L	1	123-91-1	1

1-Spiked at 50 mg/L

Quality Control Report

Report ID: S68584.01(01)+QC01
Generated on 11/22/2024

Report to

Attention: Kaitlyn Hunt
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 C:947-777-5215 FAX:

Report Produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S68584.01-S68584.05
Project: 30214036.0470A / RACER Lansing GWS
Submitted Date/Time: 11/14/2024 16:25
Sampled by: Donald Richmond
P.O. #: 30214036.0470A

QC Report Sections

Cover Page (Page 11)
Analysis Summary (Pages 12-16)
Prep Batch Summary (Page 17)
Surrogates per QC Sample (Page 18)
Internal Standards per Lab Sample (Pages 19-21)
Internal Standards per QC Sample (Page 22)
Batch QC Results (Page 23)

Report Flag Descriptions

*: QC result is outside of indicated control limits
W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.

Barbara Ball
Quality Assurance Manager

Lab Sample ID: S68584.01
Sample Tag: MW-20-130_111224
Collected Date/Time: 11/12/2024 12:35
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/21/24 15:31	241120D9	VS241120W2	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S68584.02
Sample Tag: MW-21-140_111224
Collected Date/Time: 11/12/2024 14:20
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/21/24 08:48	241120D9	VS241120W2	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S68584.03
Sample Tag: MW-16-85_111224
Collected Date/Time: 11/12/2024 15:55
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/21/24 10:54	241120D9	VS241120W2	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S68584.04
Sample Tag: MW-16-85_111224 MS
Collected Date/Time: 11/12/2024 15:55
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/21/24 06:16	241120D9	VS241120W2	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S68584.05

Sample Tag: MW-16-85_111224 MSD

Collected Date/Time: 11/12/2024 15:55

Matrix: Groundwater

COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/21/24 06:42	241120D9	VS241120W2	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Prep Batch Summary

Organics - Volatiles, Prep Batch ID: VS241120W2

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S68584.01	1,4-Dioxane	SW8260B - SIM	11/21/24 15:31	241120D9
S68584.02	1,4-Dioxane	SW8260B - SIM	11/21/24 08:48	241120D9
S68584.03	1,4-Dioxane	SW8260B - SIM	11/21/24 10:54	241120D9
S68584.04	1,4-Dioxane	SW8260B - SIM	11/21/24 06:16	241120D9
S68584.05	1,4-Dioxane	SW8260B - SIM	11/21/24 06:42	241120D9

Organics - Volatiles, Prep Batch ID: VS241120W2

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 241120D9.BLKW20D

Run in Batch: 241120D9, Run Date: 11/21/2024 07:57, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample (LCS)

Lab Sample ID: 241120D9.LCSW20D

Run in Batch: 241120D9, Run Date: 11/21/2024 05:26, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241120D9.LCSDW20D, Parent Sample ID: 241120D9.LCSW20D

Run in Batch: 241120D9, Run Date: 11/21/2024 05:51, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Matrix Spike (MS)

Lab Sample ID: 241120D9.6858404M, Parent Sample ID: S68584.03

Run in Batch: 241120D9, Run Date: 11/21/2024 06:16, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Matrix Spike Duplicate (MSD)

Lab Sample ID: 241120D9.6858405N, Parent Sample ID: 241120D9.6858404M

Run in Batch: 241120D9, Run Date: 11/21/2024 06:42, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S68584.01

Sample Tag: MW-20-130_111224

Collected Date/Time: 11/12/2024 12:35

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 241120D9, Run Date: 11/21/2024 15:31, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**111.9**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S68584.02

Sample Tag: MW-21-140_111224

Collected Date/Time: 11/12/2024 14:20

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 241120D9, Run Date: 11/21/2024 08:48, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**108.8**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S68584.03

Sample Tag: MW-16-85_111224

Collected Date/Time: 11/12/2024 15:55

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 241120D9, Run Date: 11/21/2024 10:54, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**104.2**	50.0	200.0

QC Report - Internal Standards per QC Sample

Organics - Volatiles, Prep Batch ID: VS241120W2

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 241120D9.BLKW20D

Run in Batch: 241120D9, Run Date: 11/21/2024 07:57, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**94.1**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 241120D9.LCSW20D

Run in Batch: 241120D9, Run Date: 11/21/2024 05:26, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**109.1**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241120D9.LCSDW20D, Parent Sample ID: 241120D9.LCSW20D

Run in Batch: 241120D9, Run Date: 11/21/2024 05:51, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**96.4**	50.0	200.0

Matrix Spike (MS)

Lab Sample ID: 241120D9.6858404M, Parent Sample ID: S68584.03

Run in Batch: 241120D9, Run Date: 11/21/2024 06:16, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**100.7**	50.0	200.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 241120D9.6858405N, Parent Sample ID: 241120D9.6858404M

Run in Batch: 241120D9, Run Date: 11/21/2024 06:42, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**102.2**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VS241120W2

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 241120D9.BLKW20D

Run in Batch: 241120D9, Run Date: 11/21/2024 07:57, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
1,4-Dioxane		ND	1.00	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 241120D9.LCSW20D

Run in Batch: 241120D9, Run Date: 11/21/2024 05:26, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		99.1	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241120D9.LCSDW20D, Parent Sample ID: 241120D9.LCSW20D

Run in Batch: 241120D9, Run Date: 11/21/2024 05:51, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		110.4	70.0	130.0	10.8	30.0

Matrix Spike (MS)

Lab Sample ID: 241120D9.6858404M, Parent Sample ID: S68584.03

Run in Batch: 241120D9, Run Date: 11/21/2024 06:16, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		103.7	70.0	130.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 241120D9.6858405N, Parent Sample ID: 241120D9.6858404M

Run in Batch: 241120D9, Run Date: 11/21/2024 06:42, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		101.6	70.0	130.0	1.7	30.0

Merit Laboratories Login Checklist

Lab Set ID: S68584
Client: ARCADIS_NOVI (ARCADIS U.S., Inc.)
Project: 30214036.0470A / RACER Lansing GWS
Submitted: 11/14/2024 16:25 Login User: MMC

Attention: Kaitlyn Hunt
Address: Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 5.4
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[ ] Yes	[X] No	[ ] N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	[X] Yes	[ ] No	[ ] N/A	Do sample have correct chemical preservation	
11.	[ ] Yes	[ ] No	[X] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[ ] Yes	[X] No	[ ] N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[ ] Yes	[X] No	[ ] N/A	Samples require laboratory filtration	
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[X] No	[ ] N/A	Do water VOC, TOX, DO or Alkalinity bottles contain	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Plant 2

Merit Laboratories, Inc.

2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # _____ OF _____

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Tiffany Linder, Kaitlyn Hunt
COMPANY: Arcadis
ADDRESS: 28550 Cabot Drive, STE 500
CITY: Novi | STATE: MI | ZIP CODE: 48377
PHONE NO.: 947-777-5215 | FAX NO.: | P.O. NO.:
E-MAIL ADDRESS: kaitlyn.hunt@arcadis.com | QUOTE NO.:

INVOICE TO

CONTACT NAME: ☒ SAME
COMPANY:
ADDRESS:
CITY: | STATE: | ZIP CODE:
PHONE NO.: | E-MAIL ADDRESS: tiffany.linder@arcadis.com

PROJECT NO./NAME: 30214036.0470A / RACER Lansing GWS
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Donald Richmond/Donald Richmond

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER _____

DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☒ EDD ☐ OTHER _____

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐ OHIO VAP ☐ Drinking Water ☐ DoD ☐ NPDES

Project Locations: ☐ Detroit ☐ New York ☐ Other _____

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	1,4-Dioxane - 8260 SIMS	VOC - 8260 SIMS	Special Instructions
68584.01	11/12/24	1235	MW-20-130_111224	GW	3		3						X	X	1,4 D only
.02	11/12/24	1420	MW-21-140_111224	GW	3		3						X	X	1,4 D only
.03/04/.05	11/12/24	1555	MW-16-85_111224	GW	9		9						X	X	MS MSD

RELINQUISHED BY: SIGNATURE/ORGANIZATION (Sampler)	Donald Richmond/Arcadis	DATE 11/14/24	TIME 1625
RECEIVED BY: SIGNATURE/ORGANIZATION	Johanna Murray	DATE 11/14/24	TIME 1625
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

SEAL NO. | SEAL INTACT YES☐ NO☐ | INITIALS
SEAL NO. | SEAL INTACT YES☐ NO☐ | INITIALS

NOTES: TEMP. ON ARRIVAL 5.4

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

Analytical Laboratory Report

Report ID: S68585.01(01)+QC01
Generated on 11/25/2024

Report to

Attention: Kaitlyn Hunt
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 C:947-777-5215 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Addtional Contacts: Marina Samp, Tiffany Linder

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S68585.01-S68585.12
Project: 30214036.0470B / RACER Lansing GWS
Collected Date(s): 11/13/2024 - 11/14/2024
Submitted Date/Time: 11/14/2024 16:25
Sampled by: Donald Richmond
P.O. #: US3460020275

Table of Contents

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Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Starred (*) analytes are not NY NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.
Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.
All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.
For a specific list of accredited analytes, please feel free to contact the laboratory or visit https://www.meritlabs.com/certifications.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
o	Associated EIS outside of control limits
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
q	Qualifier ion ratio outside of control limits
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
E300.0	EPA Method 300.0 Revision 2.1 (1993)
N/A	Not Applicable
SM4500-N/NH3 G	Standard Method 4500 N(org)B 2021 / 4500 NH3 G 2021
SM4500-PE	Standard Method 4500 P E 2021 / 4500 P B(5) 2021
SW5030C/8260C	SW 846 Method 8260C Revision 3 August 2006 / 5030C Revision 3 May 2003
SW8260B - SIM	SW 846 Method 8260B Revision 2 December 1996 SIMs

Sample Summary (12 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S68585.01	TW-14-02_111324	Groundwater	11/13/24 10:20
S68585.02	PW-14-02_111324	Groundwater	11/13/24 11:20
S68585.03	PW-14-01_111324	Groundwater	11/13/24 12:25
S68585.04	MW-21-142_111324	Groundwater	11/13/24 14:20
S68585.05	MW-20-126_111324	Groundwater	11/13/24 15:35
S68585.06	TW-15-12_111424	Groundwater	11/14/24 09:25
S68585.07	MW-20-127_111424	Groundwater	11/14/24 11:05
S68585.08	MW-19-123_111424	Groundwater	11/14/24 12:25
S68585.09	MW-19-121_111424	Groundwater	11/14/24 13:35
S68585.10	MW-20-129_111424	Groundwater	11/14/24 15:10
S68585.11	Trip Blank	Water	11/14/24 00:01
S68585.12	DUP-02_111424	Groundwater	11/14/24 00:01

Lab Sample ID: S68585.01
Sample Tag: TW-14-02_111324
Collected Date/Time: 11/13/2024 10:20
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/20/24 12:01	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/21/24 15:06, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	21	1		ug/L	1	123-91-1	

Lab Sample ID: S68585.02
Sample Tag: PW-14-02_111324
Collected Date/Time: 11/13/2024 11:20
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/20/24 12:01	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/21/24 09:39, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	6	1		ug/L	1	123-91-1	

Lab Sample ID: S68585.03
Sample Tag: PW-14-01_111324
Collected Date/Time: 11/13/2024 12:25
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/20/24 12:01	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/21/24 09:13, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	Not detected	1		ug/L	1	123-91-1	

Lab Sample ID: S68585.04
Sample Tag: MW-21-142_111324
Collected Date/Time: 11/13/2024 14:20
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/20/24 12:01	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/21/24 14:16, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	95	1		ug/L	1	123-91-1	

Lab Sample ID: S68585.05
Sample Tag: MW-20-126_111324
Collected Date/Time: 11/13/2024 15:35
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/20/24 12:01	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/21/24 12:35, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	27	1		ug/L	1	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S68585.06
Sample Tag: TW-15-12_111424
Collected Date/Time: 11/14/2024 09:25
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.4	IR
1	250mL Plastic	H2SO4	Yes	5.4	IR
1	125mL Plastic	None	Yes	5.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/20/24 12:01	ACK	

Inorganics

Method: E300.0, Run Date: 11/15/24 15:19, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Nitrate-N	Not detected	0.50		mg/L	5	14797-55-8	

Method: SM4500-N/NH3 G, Run Date: 11/22/24 13:06, Analyst: MJC

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Kjeldahl Nitrogen*	0.2	0.1		mg/L	4		

Method: SM4500-PE, Run Date: 11/20/24 11:59, Analyst: MJC

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Phosphorus*	0.03	0.01	0.009	mg/L	1	7723-14-0	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/21/24 10:04, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	Not detected	1		ug/L	1	123-91-1	

Lab Sample ID: S68585.07
Sample Tag: MW-20-127_111424
Collected Date/Time: 11/14/2024 11:05
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.4	IR
1	250mL Plastic	H2SO4	Yes	5.4	IR
1	125mL Plastic	None	Yes	5.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/20/24 12:01	ACK	

Inorganics

Method: E300.0, Run Date: 11/15/24 15:29, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Nitrate-N	Not detected	0.50		mg/L	5	14797-55-8	

Method: SM4500-N/NH3 G, Run Date: 11/22/24 13:08, Analyst: MJC

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Kjeldahl Nitrogen*	0.7	0.1		mg/L	4		

Method: SM4500-PE, Run Date: 11/20/24 12:02, Analyst: MJC

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Phosphorus*	0.05	0.01	0.009	mg/L	1	7723-14-0	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/22/24 16:25, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	174	1		ug/L	1	123-91-1	

Lab Sample ID: S68585.08
Sample Tag: MW-19-123_111424
Collected Date/Time: 11/14/2024 12:25
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.4	IR
1	250mL Plastic	H2SO4	Yes	5.4	IR
1	125mL Plastic	None	Yes	5.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/20/24 12:01	ACK	

Inorganics

Method: E300.0, Run Date: 11/15/24 15:39, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Nitrate-N	Not detected	0.50		mg/L	5	14797-55-8	

Method: SM4500-N/NH3 G, Run Date: 11/22/24 13:14, Analyst: MJC

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Kjeldahl Nitrogen*	0.2	0.1		mg/L	4		

Method: SM4500-PE, Run Date: 11/20/24 12:05, Analyst: MJC

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Phosphorus*	Not detected	0.01	0.009	mg/L	1	7723-14-0	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/22/24 01:14, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	19	1		ug/L	1	123-91-1	

Lab Sample ID: S68585.09
Sample Tag: MW-19-121_111424
Collected Date/Time: 11/14/2024 13:35
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.4	IR
1	250mL Plastic	H2SO4	Yes	5.4	IR
1	125mL Plastic	None	Yes	5.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/20/24 12:01	ACK	

Inorganics

Method: E300.0, Run Date: 11/15/24 15:49, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Nitrate-N	Not detected	0.50		mg/L	5	14797-55-8	

Method: SM4500-N/NH3 G, Run Date: 11/22/24 13:16, Analyst: MJC

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Kjeldahl Nitrogen*	0.3	0.1		mg/L	4		

Method: SM4500-PE, Run Date: 11/20/24 12:14, Analyst: MJC

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Phosphorus*	1.06	0.05	0.045	mg/L	5	7723-14-0	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/21/24 20:12, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	Not detected	1		ug/L	1	123-91-1	

Lab Sample ID: S68585.10
Sample Tag: MW-20-129_111424
Collected Date/Time: 11/14/2024 15:10
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/20/24 12:01	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/22/24 02:30, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	77	1		ug/L	1	123-91-1	

Lab Sample ID: S68585.11
Sample Tag: Trip Blank
Collected Date/Time: 11/14/2024 00:01
Matrix: Water
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40mL Glass	HCL	Yes	5.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/22/24 10:15	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/21/24 19:47, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	Not detected	1		ug/L	1	123-91-1	

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/21/24 15:06, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	

Lab Sample ID: S68585.11 (continued)
Sample Tag: Trip Blank

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/21/24 15:06, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Lab Sample ID: S68585.12
Sample Tag: DUP-02_111424
Collected Date/Time: 11/14/2024 00:01
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.4	IR
1	250mL Plastic	H2SO4	Yes	5.4	IR
1	125mL Plastic	None	Yes	5.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/22/24 10:15	NDK	

Inorganics

Method: E300.0, Run Date: 11/15/24 15:59, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Nitrate-N	Not detected	0.50		mg/L	5	14797-55-8	

Method: SM4500-N/NH3 G, Run Date: 11/22/24 13:18, Analyst: MJC

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Kjeldahl Nitrogen*	0.7	0.1		mg/L	4		

Method: SM4500-PE, Run Date: 11/20/24 12:17, Analyst: MJC

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Phosphorus*	0.05	0.01	0.009	mg/L	1	7723-14-0	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/21/24 23:34, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	172	1		ug/L	1	123-91-1	

Quality Control Report

Report ID: S68585.01(01)+QC01
Generated on 11/22/2024

Report to

Attention: Kaitlyn Hunt
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 C:947-777-5215 FAX:

Report Produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S68585.01-S68585.12
Project: 30214036.0470B / RACER Lansing GWS
Submitted Date/Time: 11/14/2024 16:25
Sampled by: Donald Richmond
P.O. #: US3460020275

QC Report Sections

Cover Page (Page 19)
Analysis Summary (Pages 20-31)
Prep Batch Summary (Pages 32-33)
Surrogates per Lab Sample (Page 34)
Surrogates per QC Sample (Pages 35-38)
Internal Standards per Lab Sample (Pages 39-50)
Internal Standards per QC Sample (Pages 51-54)
Batch QC Results (Pages 55-65)

Report Flag Descriptions

*: QC result is outside of indicated control limits
W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.

Barbara Ball
Quality Assurance Manager

Lab Sample ID: S68585.01
Sample Tag: TW-14-02_111324
Collected Date/Time: 11/13/2024 10:20
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/21/24 15:06	241120D9	VS241120W2	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S68585.02
Sample Tag: PW-14-02_111324
Collected Date/Time: 11/13/2024 11:20
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/21/24 09:39	241120D9	VS241120W2	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S68585.03
Sample Tag: PW-14-01_111324
Collected Date/Time: 11/13/2024 12:25
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/21/24 09:13	241120D9	VS241120W2	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S68585.04
Sample Tag: MW-21-142_111324
Collected Date/Time: 11/13/2024 14:20
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/21/24 14:16	241120D9	VS241120W2	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S68585.05
Sample Tag: MW-20-126_111324
Collected Date/Time: 11/13/2024 15:35
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/21/24 12:35	241120D9	VS241120W2	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S68585.06

Sample Tag: TW-15-12_111424

Collected Date/Time: 11/14/2024 09:25

Matrix: Groundwater

COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Inorganics						
Nitrate-N	E300.0	11/15/24 15:19	NTRA241115-W1-A	NTRA241115-W1-A	No	BLK/LCS/MS/MSD/DU
Total Kjeldahl Nitrogen	SM4500-N/NH3 G	11/22/24 13:06	TKN241122B	TKN241122B	No	BLK/LCS/MS/DUP
Total Phosphorus	SM4500-PE	11/20/24 11:59	PHS241120QC	PHS241120QC	No	BLK/LCS/MS/DUP
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/21/24 10:04	241120D9	VS241120W2	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S68585.07
Sample Tag: MW-20-127_111424
Collected Date/Time: 11/14/2024 11:05
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Inorganics						
Nitrate-N	E300.0	11/15/24 15:29	NTRA241115-W1-A	NTRA241115-W1-A	No	BLK/LCS/MS/MSD/DU
Total Kjeldahl Nitrogen	SM4500-N/NH3 G	11/22/24 13:08	TKN241122B	TKN241122B	No	BLK/LCS/MS/DUP
Total Phosphorus	SM4500-PE	11/20/24 12:02	PHS241120QC	PHS241120QC	No	BLK/LCS/MS/DUP
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/22/24 16:25	241122A9	VS241122W1	Yes	BLK/LCS/LCSD

QC Report - Analysis Summary

Lab Sample ID: S68585.08
Sample Tag: MW-19-123_111424
Collected Date/Time: 11/14/2024 12:25
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Inorganics						
Nitrate-N	E300.0	11/15/24 15:39	NTRA241115-W1-A	NTRA241115-W1-A	No	BLK/LCS/MS/MSD/DU
Total Kjeldahl Nitrogen	SM4500-N/NH3 G	11/22/24 13:14	TKN241122B	TKN241122B	No	BLK/LCS/MS/DUP
Total Phosphorus	SM4500-PE	11/20/24 12:05	PHS241120QC	PHS241120QC	No	BLK/LCS/MS/DUP
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/22/24 01:14	241121A9	VS241121W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S68585.09
Sample Tag: MW-19-121_111424
Collected Date/Time: 11/14/2024 13:35
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Inorganics						
Nitrate-N	E300.0	11/15/24 15:49	NTRA241115-W1-A	NTRA241115-W1-A	No	BLK/LCS/MS/MSD/DU
Total Kjeldahl Nitrogen	SM4500-N/NH3 G	11/22/24 13:16	TKN241122B	TKN241122B	No	BLK/LCS/MS/DUP
Total Phosphorus	SM4500-PE	11/20/24 12:14	PHS241120QC	PHS241120QC	No	BLK/LCS/MS/DUP
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/21/24 20:12	241121A9	VS241121W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S68585.10
Sample Tag: MW-20-129_111424
Collected Date/Time: 11/14/2024 15:10
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/22/24 02:30	241121A9	VS241121W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S68585.11

Sample Tag: Trip Blank

Collected Date/Time: 11/14/2024 00:01

Matrix: Water

COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/21/24 19:47	241121A9	VS241121W1	Yes	BLK/LCS/LCSD/MS/MS
Volatile Organics - DEQ List	SW5030C/8260C	11/21/24 15:06	241121A7	VF241121W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S68585.12

Sample Tag: DUP-02_111424

Collected Date/Time: 11/14/2024 00:01

Matrix: Groundwater

COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Inorganics						
Nitrate-N	E300.0	11/15/24 15:59	NTRA241115-W1-A	NTRA241115-W1-A	No	BLK/LCS/MS/MSD/DU
Total Kjeldahl Nitrogen	SM4500-N/NH3 G	11/22/24 13:18	TKN241122B	TKN241122B	No	BLK/LCS/MS/DUP
Total Phosphorus	SM4500-PE	11/20/24 12:17	PHS241120QC	PHS241120QC	No	BLK/LCS/MS/DUP
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/21/24 23:34	241121A9	VS241121W1	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Prep Batch Summary

Inorganics, Prep Batch ID: NTRA241115-W1-A

Surrogates: No, QC Types: BLK/LCS/MS/MSD/DUP

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S68585.06	Nitrate-N	E300.0	11/15/24 15:19	NTRA241115-W1-A
S68585.07	Nitrate-N	E300.0	11/15/24 15:29	NTRA241115-W1-A
S68585.08	Nitrate-N	E300.0	11/15/24 15:39	NTRA241115-W1-A
S68585.09	Nitrate-N	E300.0	11/15/24 15:49	NTRA241115-W1-A
S68585.12	Nitrate-N	E300.0	11/15/24 15:59	NTRA241115-W1-A

Inorganics, Prep Batch ID: PHS241120QC

Surrogates: No, QC Types: BLK/LCS/MS/DUP

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S68585.06	Total Phosphorus	SM4500-PE	11/20/24 11:59	PHS241120QC
S68585.07	Total Phosphorus	SM4500-PE	11/20/24 12:02	PHS241120QC
S68585.08	Total Phosphorus	SM4500-PE	11/20/24 12:05	PHS241120QC
S68585.09	Total Phosphorus	SM4500-PE	11/20/24 12:14	PHS241120QC
S68585.12	Total Phosphorus	SM4500-PE	11/20/24 12:17	PHS241120QC

Inorganics, Prep Batch ID: TKN241122B

Surrogates: No, QC Types: BLK/LCS/MS/DUP

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S68585.06	Total Kjeldahl Nitrogen	SM4500-N/NH3 G	11/22/24 13:06	TKN241122B
S68585.07	Total Kjeldahl Nitrogen	SM4500-N/NH3 G	11/22/24 13:08	TKN241122B
S68585.08	Total Kjeldahl Nitrogen	SM4500-N/NH3 G	11/22/24 13:14	TKN241122B
S68585.09	Total Kjeldahl Nitrogen	SM4500-N/NH3 G	11/22/24 13:16	TKN241122B
S68585.12	Total Kjeldahl Nitrogen	SM4500-N/NH3 G	11/22/24 13:18	TKN241122B

Organics - Volatiles, Prep Batch ID: VF241121W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S68585.11	Volatile Organics - DEQ List	SW5030C/8260C	11/21/24 15:06	241121A7

Organics - Volatiles, Prep Batch ID: VS241120W2

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S68585.01	1,4-Dioxane	SW8260B - SIM	11/21/24 15:06	241120D9
S68585.02	1,4-Dioxane	SW8260B - SIM	11/21/24 09:39	241120D9
S68585.03	1,4-Dioxane	SW8260B - SIM	11/21/24 09:13	241120D9
S68585.04	1,4-Dioxane	SW8260B - SIM	11/21/24 14:16	241120D9
S68585.05	1,4-Dioxane	SW8260B - SIM	11/21/24 12:35	241120D9
S68585.06	1,4-Dioxane	SW8260B - SIM	11/21/24 10:04	241120D9

Organics - Volatiles, Prep Batch ID: VS241121W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S68585.08	1,4-Dioxane	SW8260B - SIM	11/22/24 01:14	241121A9
S68585.09	1,4-Dioxane	SW8260B - SIM	11/21/24 20:12	241121A9
S68585.10	1,4-Dioxane	SW8260B - SIM	11/22/24 02:30	241121A9
S68585.11	1,4-Dioxane	SW8260B - SIM	11/21/24 19:47	241121A9
S68585.12	1,4-Dioxane	SW8260B - SIM	11/21/24 23:34	241121A9

Organics - Volatiles, Prep Batch ID: VS241122W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S68585.07	1,4-Dioxane	SW8260B - SIM	11/22/24 16:25	241122A9

QC Report - Surrogates per Lab Sample

Lab Sample ID: S68585.11

Sample Tag: Trip Blank

Collected Date/Time: 11/14/2024 00:01

Matrix: Water

COC Reference:

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 241121A7, Run Date: 11/21/2024 15:06, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**100.5**	80.0	124.0
1,2-Dichloroethane-D4		**100.4**	72.0	125.0
Toluene-D8		**96.7**	89.0	112.0

Organics - Volatiles, Prep Batch ID: VF241121W1

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 241121A7.BLKW21A

Run in Batch: 241121A7, Run Date: 11/21/2024 14:43, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**99.4**	80.0	124.0
1,2-Dichloroethane-D4		**99.5**	72.0	125.0
Toluene-D8		**96.0**	89.0	112.0

Laboratory Control Sample (LCS)

Lab Sample ID: 241121A7.LCSW21A

Run in Batch: 241121A7, Run Date: 11/21/2024 13:08, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**99.4**	80.0	124.0
1,2-Dichloroethane-D4		**93.0**	72.0	125.0
Toluene-D8		**96.6**	89.0	112.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241121A7.LCSDW21A, Parent Sample ID: 241121A7.LCSW21A

Run in Batch: 241121A7, Run Date: 11/21/2024 13:32, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**97.7**	80.0	124.0
1,2-Dichloroethane-D4		**91.8**	72.0	125.0
Toluene-D8		**96.5**	89.0	112.0

Organics - Volatiles, Prep Batch ID: VS241120W2

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 241120D9.BLKW20D

Run in Batch: 241120D9, Run Date: 11/21/2024 07:57, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample (LCS)

Lab Sample ID: 241120D9.LCSW20D

Run in Batch: 241120D9, Run Date: 11/21/2024 05:26, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241120D9.LCSDW20D, Parent Sample ID: 241120D9.LCSW20D

Run in Batch: 241120D9, Run Date: 11/21/2024 05:51, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Matrix Spike (MS)

Lab Sample ID: 241120D9.6858404M, Parent Sample ID: S68584.03

Run in Batch: 241120D9, Run Date: 11/21/2024 06:16, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Matrix Spike Duplicate (MSD)

Lab Sample ID: 241120D9.6858405N, Parent Sample ID: 241120D9.6858404M

Run in Batch: 241120D9, Run Date: 11/21/2024 06:42, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Organics - Volatiles, Prep Batch ID: VS241121W1

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 241121A9.BLKW21A

Run in Batch: 241121A9, Run Date: 11/21/2024 19:22, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample (LCS)

Lab Sample ID: 241121A9.LCSW21A

Run in Batch: 241121A9, Run Date: 11/21/2024 17:15, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241121A9.LCSDW21A, Parent Sample ID: 241121A9.LCSW21A

Run in Batch: 241121A9, Run Date: 11/21/2024 17:40, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Matrix Spike (MS)

Lab Sample ID: 241121A9.6868908M, Parent Sample ID: S68689.07

Run in Batch: 241121A9, Run Date: 11/21/2024 18:06, Prep Date: 11/21/2024, Matrix: WW, Dilution: 5

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Matrix Spike Duplicate (MSD)

Lab Sample ID: 241121A9.6868909N, Parent Sample ID: 241121A9.6868908M

Run in Batch: 241121A9, Run Date: 11/21/2024 18:31, Prep Date: 11/21/2024, Matrix: WW, Dilution: 5

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Organics - Volatiles, Prep Batch ID: VS241122W1

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 241122A9.BLKW22A

Run in Batch: 241122A9, Run Date: 11/22/2024 14:44, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample (LCS)

Lab Sample ID: 241122A9.LCSW22A

Run in Batch: 241122A9, Run Date: 11/22/2024 12:13, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241122A9.LCSDW22A, Parent Sample ID: 241122A9.LCSW22A

Run in Batch: 241122A9, Run Date: 11/22/2024 12:38, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S68585.01

Sample Tag: TW-14-02_111324

Collected Date/Time: 11/13/2024 10:20

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 241120D9, Run Date: 11/21/2024 15:06, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**110.1**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S68585.02

Sample Tag: PW-14-02_111324

Collected Date/Time: 11/13/2024 11:20

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 241120D9, Run Date: 11/21/2024 09:39, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**102.7**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S68585.03

Sample Tag: PW-14-01_111324

Collected Date/Time: 11/13/2024 12:25

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 241120D9, Run Date: 11/21/2024 09:13, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**102.3**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S68585.04

Sample Tag: MW-21-142_111324

Collected Date/Time: 11/13/2024 14:20

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 241120D9, Run Date: 11/21/2024 14:16, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**111.4**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S68585.05

Sample Tag: MW-20-126_111324

Collected Date/Time: 11/13/2024 15:35

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 241120D9, Run Date: 11/21/2024 12:35, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**108.4**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S68585.06

Sample Tag: TW-15-12_111424

Collected Date/Time: 11/14/2024 09:25

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 241120D9, Run Date: 11/21/2024 10:04, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**107.6**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S68585.07

Sample Tag: MW-20-127_111424

Collected Date/Time: 11/14/2024 11:05

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 241122A9, Run Date: 11/22/2024 16:25, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**102.9**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S68585.08

Sample Tag: MW-19-123_111424

Collected Date/Time: 11/14/2024 12:25

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 241121A9, Run Date: 11/22/2024 01:14, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**88.1**	50.0	200.0

Lab Sample ID: S68585.09

Sample Tag: MW-19-121_111424

Collected Date/Time: 11/14/2024 13:35

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 241121A9, Run Date: 11/21/2024 20:12, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**97.3**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S68585.10

Sample Tag: MW-20-129_111424

Collected Date/Time: 11/14/2024 15:10

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 241121A9, Run Date: 11/22/2024 02:30, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**90.0**	50.0	200.0

Lab Sample ID: S68585.11

Sample Tag: Trip Blank

Collected Date/Time: 11/14/2024 00:01

Matrix: Water

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 241121A9, Run Date: 11/21/2024 19:47, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**92.7**	50.0	200.0

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 241121A7, Run Date: 11/21/2024 15:06, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**96.7**	50.0	200.0
1,4-Difluorobenzene		**100.8**	50.0	200.0
Chlorobenzene-D5		**99.7**	50.0	200.0
1,4-Dichlorobenzene-D4		**100.9**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S68585.12

Sample Tag: DUP-02_111424

Collected Date/Time: 11/14/2024 00:01

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 241121A9, Run Date: 11/21/2024 23:34, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**89.1**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VF241121W1

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 241121A7.BLKW21A

Run in Batch: 241121A7, Run Date: 11/21/2024 14:43, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**95.6**	50.0	200.0
1,4-Difluorobenzene		**99.5**	50.0	200.0
Chlorobenzene-D5		**99.3**	50.0	200.0
1,4-Dichlorobenzene-D4		**100.0**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 241121A7.LCSW21A

Run in Batch: 241121A7, Run Date: 11/21/2024 13:08, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**98.9**	50.0	200.0
1,4-Difluorobenzene		**99.2**	50.0	200.0
Chlorobenzene-D5		**101.5**	50.0	200.0
1,4-Dichlorobenzene-D4		**100.4**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241121A7.LCSDW21A, Parent Sample ID: 241121A7.LCSW21A

Run in Batch: 241121A7, Run Date: 11/21/2024 13:32, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**96.3**	50.0	200.0
1,4-Difluorobenzene		**96.7**	50.0	200.0
Chlorobenzene-D5		**99.5**	50.0	200.0
1,4-Dichlorobenzene-D4		**96.6**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VS241120W2

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 241120D9.BLKW20D

Run in Batch: 241120D9, Run Date: 11/21/2024 07:57, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**94.1**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 241120D9.LCSW20D

Run in Batch: 241120D9, Run Date: 11/21/2024 05:26, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**109.1**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241120D9.LCSDW20D, Parent Sample ID: 241120D9.LCSW20D

Run in Batch: 241120D9, Run Date: 11/21/2024 05:51, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**96.4**	50.0	200.0

Matrix Spike (MS)

Lab Sample ID: 241120D9.6858404M, Parent Sample ID: S68584.03

Run in Batch: 241120D9, Run Date: 11/21/2024 06:16, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**100.7**	50.0	200.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 241120D9.6858405N, Parent Sample ID: 241120D9.6858404M

Run in Batch: 241120D9, Run Date: 11/21/2024 06:42, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**102.2**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VS241121W1

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 241121A9.BLKW21A

Run in Batch: 241121A9, Run Date: 11/21/2024 19:22, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**89.9**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 241121A9.LCSW21A

Run in Batch: 241121A9, Run Date: 11/21/2024 17:15, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**99.7**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241121A9.LCSDW21A, Parent Sample ID: 241121A9.LCSW21A

Run in Batch: 241121A9, Run Date: 11/21/2024 17:40, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**99.3**	50.0	200.0

Matrix Spike (MS)

Lab Sample ID: 241121A9.6868908M, Parent Sample ID: S68689.07

Run in Batch: 241121A9, Run Date: 11/21/2024 18:06, Prep Date: 11/21/2024, Matrix: WW, Dilution: 5

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**91.7**	50.0	200.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 241121A9.6868909N, Parent Sample ID: 241121A9.6868908M

Run in Batch: 241121A9, Run Date: 11/21/2024 18:31, Prep Date: 11/21/2024, Matrix: WW, Dilution: 5

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**90.4**	50.0	200.0

QC Report - Internal Standards per QC Sample

Organics - Volatiles, Prep Batch ID: VS241122W1

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 241122A9.BLKW22A

Run in Batch: 241122A9, Run Date: 11/22/2024 14:44, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**102.3**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 241122A9.LCSW22A

Run in Batch: 241122A9, Run Date: 11/22/2024 12:13, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**99.9**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241122A9.LCSDW22A, Parent Sample ID: 241122A9.LCSW22A

Run in Batch: 241122A9, Run Date: 11/22/2024 12:38, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**100.1**	50.0	200.0

Inorganics, Prep Batch ID: NTRA241115-W1-A

Surrogates: No, QC Types: BLK/LCS/MS/MSD/DUP

Blank (BLK)

Lab Sample ID: NTRA241115-W1-A.LRB1

Run in Batch: NTRA241115-W1-A, Run Date: 11/11/2024 20:15, Prep Date: 11/11/2024, Matrix: Liquid, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Nitrate-N		ND	0.10	mg/L

Laboratory Control Sample (LCS)

Lab Sample ID: NTRA241115-W1-A.LCS1

Run in Batch: NTRA241115-W1-A, Run Date: 11/11/2024 12:41, Prep Date: 11/11/2024, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Nitrate-N		99.0	90	110

Matrix Spike (MS)

Lab Sample ID: NTRA241115-W1-A.MS1, Parent Sample ID: S68520.03

Run in Batch: NTRA241115-W1-A, Run Date: 11/11/2024 14:16, Prep Date: 11/11/2024, Matrix: Liquid, Dilution: 10

Analyte	Flags	% Rec	LCL	UCL
Nitrate-N		103.3	80	120

Matrix Spike Duplicate (MSD)

Lab Sample ID: NTRA241115-W1-A.MSD1, Parent Sample ID: NTRA241115-W1-A.MS1

Run in Batch: NTRA241115-W1-A, Run Date: 11/11/2024 14:29, Prep Date: 11/11/2024, Matrix: Liquid, Dilution: 10

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Nitrate-N		100.9	80	120	2	15

Duplicate (DUP)

Lab Sample ID: NTRA241115-W1-A.DP1, Parent Sample ID: S68520.02

Run in Batch: NTRA241115-W1-A, Run Date: 11/11/2024 13:31, Prep Date: 11/11/2024, Matrix: Liquid, Dilution: 10

Analyte	Flags	RPD	RPD CL
Nitrate-N		NC	15

Inorganics, Prep Batch ID: PHS241120QC

Surrogates: No, QC Types: BLK/LCS/MS/DUP

Blank (BLK)

Lab Sample ID: PHS241120QC.LRB1

Run in Batch: PHS241120QC, Run Date: 11/20/2024 11:20, Prep Date: 11/20/2024, Matrix: Liquid, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Total Phosphorus		ND	0.01	mg/L

Blank (BLK)

Lab Sample ID: PHS241120QC.LRB2

Run in Batch: PHS241120QC, Run Date: 11/20/2024 11:26, Prep Date: 11/20/2024, Matrix: Liquid, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Total Phosphorus		ND	0.02	mg/L

Laboratory Control Sample (LCS)

Lab Sample ID: PHS241120QC.LCS1

Run in Batch: PHS241120QC, Run Date: 11/20/2024 11:33, Prep Date: 11/20/2024, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Total Phosphorus		91	90	110

Matrix Spike (MS)

Lab Sample ID: PHS241120QC.MS1, Parent Sample ID: S68493.05

Run in Batch: PHS241120QC, Run Date: 11/20/2024 16:23, Prep Date: 11/20/2024, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Total Phosphorus		95	80	120

Duplicate (DUP)

Lab Sample ID: PHS241120QC.DP1, Parent Sample ID: S68546.02

Run in Batch: PHS241120QC, Run Date: 11/20/2024 16:19, Prep Date: 11/20/2024, Matrix: Liquid, Dilution: 1

Analyte	Flags	RPD	RPD CL
Total Phosphorus		2.7	20

Inorganics, Prep Batch ID: TKN241122B

Surrogates: No, QC Types: BLK/LCS/MS/DUP

Blank (BLK)

Lab Sample ID: TKN241122B.LRB1

Run in Batch: TKN241122B, Run Date: 11/22/2024 12:52, Prep Date: 11/22/2024, Matrix: Liquid, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Total Kjeldahl Nitrogen		ND	0.02	mg/L

Blank (BLK)

Lab Sample ID: TKN241122B.LRB2

Run in Batch: TKN241122B, Run Date: 11/22/2024 13:00, Prep Date: 11/22/2024, Matrix: Liquid, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Total Kjeldahl Nitrogen		ND	0.1	mg/L

Laboratory Control Sample (LCS)

Lab Sample ID: TKN241122B.LCS1

Run in Batch: TKN241122B, Run Date: 11/22/2024 13:04, Prep Date: 11/22/2024, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Total Kjeldahl Nitrogen		102.2	90	110

Matrix Spike (MS)

Lab Sample ID: TKN241122B.MS1, Parent Sample ID: S68689.04

Run in Batch: TKN241122B, Run Date: 11/22/2024 13:22, Prep Date: 11/22/2024, Matrix: Liquid, Dilution: 4

Analyte	Flags	% Rec	LCL	UCL
Total Kjeldahl Nitrogen		115.2	80	120

Duplicate (DUP)

Lab Sample ID: TKN241122B.DP1, Parent Sample ID: S68728.02

Run in Batch: TKN241122B, Run Date: 11/22/2024 13:44, Prep Date: 11/22/2024, Matrix: Liquid, Dilution: 50

Analyte	Flags	RPD	RPD CL
Total Kjeldahl Nitrogen		1.2	20

Organics - Volatiles, Prep Batch ID: VF241121W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 241121A7.BLKW21A

Run in Batch: 241121A7, Run Date: 11/21/2024 14:43, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Diethyl ether		ND	1.00	ug/l
Acetone		ND	10.00	ug/l
Methyl iodide		ND	1.00	ug/l
Carbon disulfide		ND	1.00	ug/l
tert-Methyl butyl ether (MTBE)		ND	1.00	ug/l
Acrylonitrile		ND	1.00	ug/l
2-Butanone (MEK)		ND	10.00	ug/l
Dichlorodifluoromethane		ND	1.00	ug/l
Chloromethane		ND	1.00	ug/l
Vinyl chloride		ND	1.00	ug/l
Bromomethane		ND	1.00	ug/l
Chloroethane		ND	1.00	ug/l
Trichlorofluoromethane		ND	1.00	ug/l
1,1-Dichloroethene		ND	1.00	ug/l
Methylene chloride		ND	1.00	ug/l
trans-1,2-Dichloroethene		ND	1.00	ug/l
1,1-Dichloroethane		ND	1.00	ug/l
cis-1,2-Dichloroethene		ND	1.00	ug/l
Tetrahydrofuran		ND	10.00	ug/l
Chloroform		ND	1.00	ug/l
Bromochloromethane		ND	1.00	ug/l
1,1,1-Trichloroethane		ND	1.00	ug/l
4-Methyl-2-pentanone (MIBK)		ND	10.00	ug/l
2-Hexanone		ND	10.00	ug/l
Carbon tetrachloride		ND	1.00	ug/l
Benzene		ND	1.00	ug/l
1,2-Dichloroethane		ND	1.00	ug/l
Trichloroethene		ND	1.00	ug/l
1,2-Dichloropropane		ND	1.00	ug/l
Bromodichloromethane		ND	1.00	ug/l
Dibromomethane		ND	1.00	ug/l
cis-1,3-Dichloropropene		ND	1.00	ug/l
Toluene		ND	1.00	ug/l
trans-1,3-Dichloropropene		ND	1.00	ug/l
1,1,2-Trichloroethane		ND	1.00	ug/l
Tetrachloroethene		ND	1.00	ug/l
trans-1,4-Dichloro-2-butene		ND	1.00	ug/l
Dibromochloromethane		ND	1.00	ug/l
1,2-Dibromoethane		ND	1.00	ug/l
Chlorobenzene		ND	1.00	ug/l
1,1,1,2-Tetrachloroethane		ND	1.00	ug/l
Ethylbenzene		ND	1.00	ug/l
p,m-Xylene		ND	2.00	ug/l
o-Xylene		ND	1.00	ug/l
Styrene		ND	1.00	ug/l
Isopropylbenzene		ND	1.00	ug/l

Organics - Volatiles, Prep Batch ID: VF241121W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK) (continued)

Lab Sample ID: 241121A7.BLKW21A

Run in Batch: 241121A7, Run Date: 11/21/2024 14:43, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Bromoform		ND	1.00	ug/l
1,1,2,2-Tetrachloroethane		ND	1.00	ug/l
1,2,3-Trichloropropane		ND	1.00	ug/l
n-Propylbenzene		ND	1.00	ug/l
Bromobenzene		ND	1.00	ug/l
1,3,5-Trimethylbenzene		ND	1.00	ug/l
tert-Butylbenzene		ND	1.00	ug/l
1,2,4-Trimethylbenzene		ND	1.00	ug/l
sec-Butylbenzene		ND	1.00	ug/l
p-Isopropyltoluene		ND	1.00	ug/l
1,3-Dichlorobenzene		ND	1.00	ug/l
1,4-Dichlorobenzene		ND	1.00	ug/l
1,2-Dichlorobenzene		ND	1.00	ug/l
1,2,3-Trimethylbenzene		ND	1.00	ug/l
n-Butylbenzene		ND	1.00	ug/l
Hexachloroethane		ND	1.00	ug/l
1,2-Dibromo-3-chloropropane		ND	1.00	ug/l
1,2,4-Trichlorobenzene		ND	1.00	ug/l
1,2,3-Trichlorobenzene		ND	1.00	ug/l
Naphthalene		ND	1.00	ug/l
2-Methylnaphthalene		ND	1.00	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 241121A7.LCSW21A

Run in Batch: 241121A7, Run Date: 11/21/2024 13:08, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Diethyl ether		109.0	67.4	121.2
Acetone		148.9	29.9	161.5
Methyl iodide		107.2	68.8	116.4
Carbon disulfide		108.4	63.8	137.4
tert-Methyl butyl ether (MTBE)		106.3	73.2	122.4
Acrylonitrile		120.0	69.9	128.9
2-Butanone (MEK)		121.8	44.0	134.4
Dichlorodifluoromethane		94.0	10.0	222.8
Chloromethane		97.4	23.8	166.5
Vinyl chloride		92.8	43.5	149.1
Bromomethane		93.5	56.8	151.3
Chloroethane		95.5	53.4	149.4
Trichlorofluoromethane		98.1	59.7	151.8
1,1-Dichloroethene		107.3	69.6	139.4
Methylene chloride		101.5	73.3	121.1
trans-1,2-Dichloroethene		98.3	73.6	129.3
1,1-Dichloroethane		101.8	71.5	126.2
cis-1,2-Dichloroethene		100.7	76.6	122.1
Tetrahydrofuran		108.1	59.0	117.9
Chloroform		102.9	78.4	124.0

Organics - Volatiles, Prep Batch ID: VF241121W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 241121A7.LCSW21A

Run in Batch: 241121A7, Run Date: 11/21/2024 13:08, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Bromochloromethane		103.3	78.2	120.8
1,1,1-Trichloroethane		102.9	79.4	130.9
4-Methyl-2-pentanone (MIBK)		105.7	71.6	125.2
2-Hexanone		110.6	55.4	136.9
Carbon tetrachloride		99.8	72.6	133.0
Benzene		100.2	79.9	124.9
1,2-Dichloroethane		97.9	76.0	126.3
Trichloroethene		97.3	79.7	124.2
1,2-Dichloropropane		100.9	78.6	126.4
Bromodichloromethane		106.2	80.4	128.2
Dibromomethane		103.9	76.9	122.1
cis-1,3-Dichloropropene		101.6	79.8	129.9
Toluene		101.1	79.8	124.5
trans-1,3-Dichloropropene		102.8	74.0	131.3
1,1,2-Trichloroethane		104.1	78.7	123.1
Tetrachloroethene		99.4	74.5	124.5
trans-1,4-Dichloro-2-butene		93.2	68.6	135.4
Dibromochloromethane		107.9	74.6	127.2
1,2-Dibromoethane		104.1	70.3	133.7
Chlorobenzene		98.8	79.2	122.7
1,1,1,2-Tetrachloroethane		102.9	80.3	128.2
Ethylbenzene		99.1	79.5	129.1
p,m-Xylene		98.9	79.4	132.2
o-Xylene		99.3	80.2	131.0
Styrene		100.1	69.5	126.7
Isopropylbenzene		97.8	74.4	121.5
Bromoform		112.3	69.4	128.0
1,1,2,2-Tetrachloroethane		104.3	79.8	126.3
1,2,3-Trichloropropane		108.2	78.3	138.8
n-Propylbenzene		96.4	82.0	130.7
Bromobenzene		100.6	78.7	124.6
1,3,5-Trimethylbenzene		97.1	81.3	128.9
tert-Butylbenzene		94.0	80.7	128.9
1,2,4-Trimethylbenzene		98.6	81.4	130.8
sec-Butylbenzene		91.0	77.4	129.8
p-Isopropyltoluene		91.0	79.8	137.5
1,3-Dichlorobenzene		97.4	77.0	131.3
1,4-Dichlorobenzene		94.9	20.7	137.7
1,2-Dichlorobenzene		100.0	10.0	166.2
1,2,3-Trimethylbenzene		97.2	76.3	124.2
n-Butylbenzene		87.0	80.0	133.3
Hexachloroethane		95.0	23.8	138.1
1,2-Dibromo-3-chloropropane		121.9	21.2	189.4
1,2,4-Trichlorobenzene		97.5	27.4	143.4
1,2,3-Trichlorobenzene		99.1	75.4	131.4
Naphthalene		109.1	32.9	135.8

Organics - Volatiles, Prep Batch ID: VF241121W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 241121A7.LCSW21A

Run in Batch: 241121A7, Run Date: 11/21/2024 13:08, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
2-Methylnaphthalene		113.2	25.5	165.5

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241121A7.LCSDW21A, Parent Sample ID: 241121A7.LCSW21A

Run in Batch: 241121A7, Run Date: 11/21/2024 13:32, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Diethyl ether		111.4	67.4	121.2	2.2	30.0
Acetone		147.2	29.9	161.5	1.2	30.0
Methyl iodide		104.2	68.8	116.4	2.9	30.0
Carbon disulfide		104.9	63.8	137.4	3.3	30.0
tert-Methyl butyl ether (MTBE)		106.5	73.2	122.4	0.2	30.0
Acrylonitrile		120.4	69.9	128.9	0.4	30.0
2-Butanone (MEK)		126.5	44.0	134.4	3.8	30.0
Dichlorodifluoromethane		92.8	10.0	222.8	1.3	30.0
Chloromethane		96.7	23.8	166.5	0.8	30.0
Vinyl chloride		91.7	43.5	149.1	1.1	30.0
Bromomethane		93.5	56.8	151.3	0.0	30.0
Chloroethane		93.9	53.4	149.4	1.7	30.0
Trichlorofluoromethane		96.6	59.7	151.8	1.5	30.0
1,1-Dichloroethene		105.2	69.6	139.4	1.9	30.0
Methylene chloride		100.1	73.3	121.1	1.3	30.0
trans-1,2-Dichloroethene		96.7	73.6	129.3	1.7	30.0
1,1-Dichloroethane		100.7	71.5	126.2	1.1	30.0
cis-1,2-Dichloroethene		99.7	76.6	122.1	1.0	30.0
Tetrahydrofuran		111.5	59.0	117.9	3.1	30.0
Chloroform		102.3	78.4	124.0	0.6	30.0
Bromochloromethane		103.4	78.2	120.8	0.1	30.0
1,1,1-Trichloroethane		101.1	79.4	130.9	1.8	30.0
4-Methyl-2-pentanone (MIBK)		109.9	71.6	125.2	3.9	30.0
2-Hexanone		112.4	55.4	136.9	1.6	30.0
Carbon tetrachloride		96.7	72.6	133.0	3.2	30.0
Benzene		99.9	79.9	124.9	0.3	30.0
1,2-Dichloroethane		99.1	76.0	126.3	1.3	30.0
Trichloroethene		97.2	79.7	124.2	0.1	30.0
1,2-Dichloropropane		100.1	78.6	126.4	0.7	30.0
Bromodichloromethane		106.2	80.4	128.2	0.1	30.0
Dibromomethane		105.4	76.9	122.1	1.5	30.0
cis-1,3-Dichloropropene		101.5	79.8	129.9	0.0	30.0
Toluene		101.4	79.8	124.5	0.2	30.0
trans-1,3-Dichloropropene		102.8	74.0	131.3	0.1	30.0
1,1,2-Trichloroethane		105.1	78.7	123.1	1.0	30.0
Tetrachloroethene		99.4	74.5	124.5	0.0	30.0
trans-1,4-Dichloro-2-butene		84.4	68.6	135.4	9.9	30.0
Dibromochloromethane		107.6	74.6	127.2	0.3	30.0
1,2-Dibromoethane		104.8	70.3	133.7	0.7	30.0
Chlorobenzene		97.6	79.2	122.7	1.2	30.0

Organics - Volatiles, Prep Batch ID: VF241121W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: 241121A7.LCSDW21A, Parent Sample ID: 241121A7.LCSW21A

Run in Batch: 241121A7, Run Date: 11/21/2024 13:32, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,1,1,2-Tetrachloroethane		101.0	80.3	128.2	1.9	30.0
Ethylbenzene		97.1	79.5	129.1	2.0	30.0
p,m-Xylene		98.0	79.4	132.2	1.0	30.0
o-Xylene		97.4	80.2	131.0	1.9	30.0
Styrene		98.2	69.5	126.7	2.0	30.0
Isopropylbenzene		95.7	74.4	121.5	2.2	30.0
Bromoform		114.0	69.4	128.0	1.5	30.0
1,1,2,2-Tetrachloroethane		105.2	79.8	126.3	0.9	30.0
1,2,3-Trichloropropane		109.6	78.3	138.8	1.3	30.0
n-Propylbenzene		94.1	82.0	130.7	2.4	30.0
Bromobenzene		99.7	78.7	124.6	0.9	30.0
1,3,5-Trimethylbenzene		95.2	81.3	128.9	1.9	30.0
tert-Butylbenzene		92.3	80.7	128.9	1.8	30.0
1,2,4-Trimethylbenzene		96.5	81.4	130.8	2.2	30.0
sec-Butylbenzene		91.3	77.4	129.8	0.3	30.0
p-Isopropyltoluene		91.1	79.8	137.5	0.2	30.0
1,3-Dichlorobenzene		97.8	77.0	131.3	0.3	30.0
1,4-Dichlorobenzene		95.9	20.7	137.7	1.0	30.0
1,2-Dichlorobenzene		101.5	10.0	166.2	1.5	30.0
1,2,3-Trimethylbenzene		97.7	76.3	124.2	0.5	30.0
n-Butylbenzene		87.3	80.0	133.3	0.3	30.0
Hexachloroethane		95.7	23.8	138.1	0.7	30.0
1,2-Dibromo-3-chloropropane		126.0	21.2	189.4	3.3	30.0
1,2,4-Trichlorobenzene		99.8	27.4	143.4	2.4	30.0
1,2,3-Trichlorobenzene		103.3	75.4	131.4	4.2	30.0
Naphthalene		112.3	32.9	135.8	2.9	30.0
2-Methylnaphthalene		124.0	25.5	165.5	9.0	30.0

Organics - Volatiles, Prep Batch ID: VS241120W2

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 241120D9.BLKW20D

Run in Batch: 241120D9, Run Date: 11/21/2024 07:57, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
1,4-Dioxane		ND	1.00	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 241120D9.LCSW20D

Run in Batch: 241120D9, Run Date: 11/21/2024 05:26, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		99.1	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241120D9.LCSDW20D, Parent Sample ID: 241120D9.LCSW20D

Run in Batch: 241120D9, Run Date: 11/21/2024 05:51, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		110.4	70.0	130.0	10.8	30.0

Matrix Spike (MS)

Lab Sample ID: 241120D9.6858404M, Parent Sample ID: S68584.03

Run in Batch: 241120D9, Run Date: 11/21/2024 06:16, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		103.7	70.0	130.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 241120D9.6858405N, Parent Sample ID: 241120D9.6858404M

Run in Batch: 241120D9, Run Date: 11/21/2024 06:42, Prep Date: 11/20/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		101.6	70.0	130.0	1.7	30.0

Organics - Volatiles, Prep Batch ID: VS241121W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 241121A9.BLKW21A

Run in Batch: 241121A9, Run Date: 11/21/2024 19:22, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
1,4-Dioxane		ND	1.00	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 241121A9.LCSW21A

Run in Batch: 241121A9, Run Date: 11/21/2024 17:15, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		95.8	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241121A9.LCSDW21A, Parent Sample ID: 241121A9.LCSW21A

Run in Batch: 241121A9, Run Date: 11/21/2024 17:40, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		100.3	70.0	130.0	4.7	30.0

Matrix Spike (MS)

Lab Sample ID: 241121A9.6868908M, Parent Sample ID: S68689.07

Run in Batch: 241121A9, Run Date: 11/21/2024 18:06, Prep Date: 11/21/2024, Matrix: WW, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		84.9	70.0	130.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 241121A9.6868909N, Parent Sample ID: 241121A9.6868908M

Run in Batch: 241121A9, Run Date: 11/21/2024 18:31, Prep Date: 11/21/2024, Matrix: WW, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		89.2	70.0	130.0	4.3	30.0

Organics - Volatiles, Prep Batch ID: VS241122W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 241122A9.BLKW22A

Run in Batch: 241122A9, Run Date: 11/22/2024 14:44, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
1,4-Dioxane		ND	1.00	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 241122A9.LCSW22A

Run in Batch: 241122A9, Run Date: 11/22/2024 12:13, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		98.5	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241122A9.LCSDW22A, Parent Sample ID: 241122A9.LCSW22A

Run in Batch: 241122A9, Run Date: 11/22/2024 12:38, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		98.9	70.0	130.0	0.4	30.0

Merit Laboratories Login Checklist

Lab Set ID: S68585
Client: ARCADIS_NOVI (ARCADIS U.S., Inc.)
Project: 30214036.0470B / RACER Lansing GWS
Submitted: 11/14/2024 16:25 Login User: MMC

Attention: Kaitlyn Hunt
Address: Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 5.4
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[ ] Yes	[X] No	[ ] N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	[X] Yes	[ ] No	[ ] N/A	Do sample have correct chemical preservation	
11.	[X] Yes	[ ] No	[ ] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[ ] Yes	[X] No	[ ] N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[ ] Yes	[X] No	[ ] N/A	Samples require laboratory filtration	
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[X] No	[ ] N/A	Do water VOC, TOX, DO or Alkalinity bottles contain	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories Bottle Preservation Check

Lab Set ID: S68585 Submitted: 11/14/2024 16:25

Client: ARCADIS_NOVI (ARCADIS U.S., Inc.)

Project: 30214036.0470B / RACER Lansing GWS

Initial Preservation Check: 11/15/2024 09:51 MMC

Preservation Recheck (E200.8): N/A

Attention: Kaitlyn Hunt
Address: Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Sample ID	Bottle / Preservation	pH (Orig)	Add ml	pH (New)	Notes
S68585.06	250mL Plastic H2SO4	<2			
S68585.07	250mL Plastic H2SO4	<2			
S68585.08	250mL Plastic H2SO4	<2			
S68585.09	250mL Plastic H2SO4	<2			
S68585.12	250mL Plastic H2SO4	<2			

Plant 2

Merit Laboratories, Inc.
2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # _____ OF _____

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Tiffany Linder, Kaitlyn Hunt
COMPANY: Arcadis
ADDRESS: 28550 Cabot Drive, STE 500
CITY: Novi STATE: MI ZIP CODE: 48377
PHONE NO.: 947-777-5215 FAX NO.: P.O. NO.:
E-MAIL ADDRESS: kaitlyn.hunt@arcadis.com QUOTE NO.:

INVOICE TO

CONTACT NAME: ☒ SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: E-MAIL ADDRESS: tiffany.linder@arcadis.com

PROJECT NO./NAME: 30214036.0470B / RACER Lansing GWS
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Donald Richmond / Donald Richmond

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER _____

DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☒ EDD ☐ OTHER _____

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐ OHIO VAP ☐ Drinking Water ☐ DoD ☐ NPDES
Project Locations: ☐ Detroit ☐ New York ☐ Other _____
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	1,4-Dioxane - 8260 SIMS	VOC - 8260 SIMS	T. Phosphorus	TKN	Nitrate
68585.01	11/13/24	1020	TW-14-02_111324	GW	3		3						X				
.02	11/13/24	1120	PW-14-02_111324	GW	3		3						X				
.03	11/13/24	1225	PW-14-01_111324	GW	3		3						X				
.04	11/13/24	1420	MW-21-142_111324	GW	3		3						X				
.05	11/13/24	1535	MW-20-126_111324	GW	3		3						X				
.06	11/14/24	0925	TW-15-12_111424	GW	5	1	3		1				X		X	X	X
.07	11/14/24	1105	MW-20-127_111424	GW	5	1	3		1				X		X	X	X
.08	11/14/24	1225	MW-19-123_111424	GW	5	1	3		1				X		X	X	X
.09	11/14/24	1335	MW-19-121_111424	GW	5	1	3		1				X		X	X	X
.10	11/14/24	1510	MW-20-129_111424	GW	3		3						X				
.11			Trip Blank		10	10							X				
.12	11/14/24	—	DUP-02_111421	GW	5	1	3		1				X		X	X	X

RELINQUISHED BY: SIGNATURE/ORGANIZATION: Donald Richmond / Arcadis ☒ Sampler DATE: 11/14/24 TIME: 1625
RECEIVED BY: SIGNATURE/ORGANIZATION: Johanna Murray DATE: 11/14/24 TIME: 1625
RELINQUISHED BY: SIGNATURE/ORGANIZATION: DATE: TIME:
RECEIVED BY: SIGNATURE/ORGANIZATION: DATE: TIME:

RELINQUISHED BY: SIGNATURE/ORGANIZATION: DATE: TIME:
RECEIVED BY: SIGNATURE/ORGANIZATION: DATE: TIME:

SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS
SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS

NOTES: TEMP. ON ARRIVAL 5.4

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

Analytical Laboratory Report

Report ID: S68650.01(01)+QC01
Generated on 11/25/2024

Report to

Attention: Kaitlyn Hunt
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 C:947-777-5215 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Addtional Contacts: Marina Samp, Tiffany Linder

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S68650.01-S68650.03
Project: 30214036.0470A / RACER Lansing GWS
Collected Date(s): 11/15/2024
Submitted Date/Time: 11/15/2024 14:45
Sampled by: Donald Richmond
P.O. #: US3460020275

Table of Contents

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Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Starred (*) analytes are not NY NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.
Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.
All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.
For a specific list of accredited analytes, please feel free to contact the laboratory or visit https://www.meritlabs.com/certifications.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
o	Associated EIS outside of control limits
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
q	Qualifier ion ratio outside of control limits
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
N/A	Not Applicable
SW8260B - SIM	SW 846 Method 8260B Revision 2 December 1996 SIMs

Analytical Laboratory Report

Sample Summary (3 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S68650.01	MW-20-128_111524	Groundwater	11/15/24 09:50
S68650.02	MW-19-124_111524	Groundwater	11/15/24 11:20
S68650.03	MW-19-122_111524	Groundwater	11/15/24 13:00

Analytical Laboratory Report

Lab Sample ID: S68650.01
Sample Tag: MW-20-128_111524
Collected Date/Time: 11/15/2024 09:50
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	11.2	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/22/24 10:15	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/21/24 21:53, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	3	1		ug/L	1	123-91-1	

Lab Sample ID: S68650.02
Sample Tag: MW-19-124_111524
Collected Date/Time: 11/15/2024 11:20
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	11.2	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/22/24 10:15	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/22/24 16:00, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	171	1		ug/L	1	123-91-1	

Lab Sample ID: S68650.03
Sample Tag: MW-19-122_111524
Collected Date/Time: 11/15/2024 13:00
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	11.2	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/22/24 10:15	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/21/24 22:18, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	2	1		ug/L	1	123-91-1	

Quality Control Report

Report ID: S68650.01(01)+QC01
Generated on 11/22/2024

Report to

Attention: Kaitlyn Hunt
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 C:947-777-5215 FAX:

Report Produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S68650.01-S68650.03
Project: 30214036.0470A / RACER Lansing GWS
Submitted Date/Time: 11/15/2024 14:45
Sampled by: Donald Richmond
P.O. #: US3460020275

QC Report Sections

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Analysis Summary (Pages 10-12)
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Internal Standards per Lab Sample (Pages 16-18)
Internal Standards per QC Sample (Pages 19-20)
Batch QC Results (Pages 21-22)

Report Flag Descriptions

*: QC result is outside of indicated control limits
W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.

Barbara Ball
Quality Assurance Manager

Lab Sample ID: S68650.01
Sample Tag: MW-20-128_111524
Collected Date/Time: 11/15/2024 09:50
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/21/24 21:53	241121A9	VS241121W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S68650.02
Sample Tag: MW-19-124_111524
Collected Date/Time: 11/15/2024 11:20
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/22/24 16:00	241122A9	VS241122W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S68650.03
Sample Tag: MW-19-122_111524
Collected Date/Time: 11/15/2024 13:00
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/21/24 22:18	241121A9	VS241121W1	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Prep Batch Summary

Organics - Volatiles, Prep Batch ID: VS241121W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S68650.01	1,4-Dioxane	SW8260B - SIM	11/21/24 21:53	241121A9
S68650.03	1,4-Dioxane	SW8260B - SIM	11/21/24 22:18	241121A9

Organics - Volatiles, Prep Batch ID: VS241122W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S68650.02	1,4-Dioxane	SW8260B - SIM	11/22/24 16:00	241122A9

QC Report - Surrogates per QC Sample

Organics - Volatiles, Prep Batch ID: VS241121W1

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 241121A9.BLKW21A

Run in Batch: 241121A9, Run Date: 11/21/2024 19:22, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample (LCS)

Lab Sample ID: 241121A9.LCSW21A

Run in Batch: 241121A9, Run Date: 11/21/2024 17:15, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241121A9.LCSDW21A, Parent Sample ID: 241121A9.LCSW21A

Run in Batch: 241121A9, Run Date: 11/21/2024 17:40, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Matrix Spike (MS)

Lab Sample ID: 241121A9.6868908M, Parent Sample ID: S68689.07

Run in Batch: 241121A9, Run Date: 11/21/2024 18:06, Prep Date: 11/21/2024, Matrix: WW, Dilution: 5

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Matrix Spike Duplicate (MSD)

Lab Sample ID: 241121A9.6868909N, Parent Sample ID: 241121A9.6868908M

Run in Batch: 241121A9, Run Date: 11/21/2024 18:31, Prep Date: 11/21/2024, Matrix: WW, Dilution: 5

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Organics - Volatiles, Prep Batch ID: VS241122W1

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 241122A9.BLKW22A

Run in Batch: 241122A9, Run Date: 11/22/2024 14:44, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
No Surrogates				

Laboratory Control Sample (LCS)

Lab Sample ID: 241122A9.LCSW22A

Run in Batch: 241122A9, Run Date: 11/22/2024 12:13, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
No Surrogates				

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241122A9.LCSDW22A, Parent Sample ID: 241122A9.LCSW22A

Run in Batch: 241122A9, Run Date: 11/22/2024 12:38, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
No Surrogates				

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S68650.01

Sample Tag: MW-20-128_111524

Collected Date/Time: 11/15/2024 09:50

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 241121A9, Run Date: 11/21/2024 21:53, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**89.9**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S68650.02

Sample Tag: MW-19-124_111524

Collected Date/Time: 11/15/2024 11:20

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 241122A9, Run Date: 11/22/2024 16:00, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**110.4**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S68650.03

Sample Tag: MW-19-122_111524

Collected Date/Time: 11/15/2024 13:00

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 241121A9, Run Date: 11/21/2024 22:18, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**99.8**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VS241121W1

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 241121A9.BLKW21A

Run in Batch: 241121A9, Run Date: 11/21/2024 19:22, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**89.9**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 241121A9.LCSW21A

Run in Batch: 241121A9, Run Date: 11/21/2024 17:15, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**99.7**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241121A9.LCSDW21A, Parent Sample ID: 241121A9.LCSW21A

Run in Batch: 241121A9, Run Date: 11/21/2024 17:40, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**99.3**	50.0	200.0

Matrix Spike (MS)

Lab Sample ID: 241121A9.6868908M, Parent Sample ID: S68689.07

Run in Batch: 241121A9, Run Date: 11/21/2024 18:06, Prep Date: 11/21/2024, Matrix: WW, Dilution: 5

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**91.7**	50.0	200.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 241121A9.6868909N, Parent Sample ID: 241121A9.6868908M

Run in Batch: 241121A9, Run Date: 11/21/2024 18:31, Prep Date: 11/21/2024, Matrix: WW, Dilution: 5

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**90.4**	50.0	200.0

QC Report - Internal Standards per QC Sample

Organics - Volatiles, Prep Batch ID: VS241122W1

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 241122A9.BLKW22A

Run in Batch: 241122A9, Run Date: 11/22/2024 14:44, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**102.3**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 241122A9.LCSW22A

Run in Batch: 241122A9, Run Date: 11/22/2024 12:13, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**99.9**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241122A9.LCSDW22A, Parent Sample ID: 241122A9.LCSW22A

Run in Batch: 241122A9, Run Date: 11/22/2024 12:38, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**100.1**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VS241121W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 241121A9.BLKW21A

Run in Batch: 241121A9, Run Date: 11/21/2024 19:22, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
1,4-Dioxane		ND	1.00	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 241121A9.LCSW21A

Run in Batch: 241121A9, Run Date: 11/21/2024 17:15, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		95.8	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241121A9.LCSDW21A, Parent Sample ID: 241121A9.LCSW21A

Run in Batch: 241121A9, Run Date: 11/21/2024 17:40, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		100.3	70.0	130.0	4.7	30.0

Matrix Spike (MS)

Lab Sample ID: 241121A9.6868908M, Parent Sample ID: S68689.07

Run in Batch: 241121A9, Run Date: 11/21/2024 18:06, Prep Date: 11/21/2024, Matrix: WW, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		84.9	70.0	130.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 241121A9.6868909N, Parent Sample ID: 241121A9.6868908M

Run in Batch: 241121A9, Run Date: 11/21/2024 18:31, Prep Date: 11/21/2024, Matrix: WW, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		89.2	70.0	130.0	4.3	30.0

Organics - Volatiles, Prep Batch ID: VS241122W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 241122A9.BLKW22A

Run in Batch: 241122A9, Run Date: 11/22/2024 14:44, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
1,4-Dioxane		ND	1.00	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 241122A9.LCSW22A

Run in Batch: 241122A9, Run Date: 11/22/2024 12:13, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		98.5	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241122A9.LCSDW22A, Parent Sample ID: 241122A9.LCSW22A

Run in Batch: 241122A9, Run Date: 11/22/2024 12:38, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		98.9	70.0	130.0	0.4	30.0

Merit Laboratories Login Checklist

Lab Set ID: S68650
Client: ARCADIS_NOVI (ARCADIS U.S., Inc.)
Project: 30214036.0470A / RACER Lansing GWS
Submitted: 11/15/2024 14:45 Login User: PFD

Attention: Kaitlyn Hunt
Address: Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Selection				Description	Note
Sample Receiving					
01.	☐ Yes	☒ No	☐ N/A	Samples are received at 4C +/- 2C Thermometer #	IR 11.2
02.	☒ Yes	☐ No	☐ N/A	Received on ice/ cooling process begun	
03.	☐ Yes	☒ No	☐ N/A	Samples shipped	
04.	☐ Yes	☒ No	☐ N/A	Samples left in 24 hr. drop box	
05.	☐ Yes	☐ No	☒ N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	☒ Yes	☐ No	☐ N/A	COC adequately filled out	
07.	☒ Yes	☐ No	☐ N/A	COC signed and relinquished to the lab	
08.	☒ Yes	☐ No	☐ N/A	Sample tag on bottles match COC	
09.	☐ Yes	☒ No	☐ N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	☒ Yes	☐ No	☐ N/A	Do sample have correct chemical preservation	
11.	☐ Yes	☐ No	☒ N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	☐ Yes	☒ No	☐ N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	☒ Yes	☐ No	☐ N/A	All bottles intact	
14.	☒ Yes	☐ No	☐ N/A	Appropriate analytical bottles are used	
15.	☒ Yes	☐ No	☐ N/A	Merit bottles used	
16.	☒ Yes	☐ No	☐ N/A	Sufficient sample volume received	
17.	☐ Yes	☒ No	☐ N/A	Samples require laboratory filtration	
18.	☒ Yes	☐ No	☐ N/A	Samples submitted within holding time	
19.	☐ Yes	☒ No	☐ N/A	Do water VOC, TOX, DO or Alkalinity bottles contain	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Plant 2

Merit Laboratories, Inc.
2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # _____ OF _____

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Tiffany Linder, Kaitlyn Hunt
COMPANY: Arcadis
ADDRESS: 28550 Cabot Drive, STE 500
CITY: Novi | STATE: MI | ZIP CODE: 48377
PHONE NO.: 947-777-5215 | FAX NO. | P.O. NO.
E-MAIL ADDRESS: kaitlyn.hunt@arcadis.com | QUOTE NO.

INVOICE TO

CONTACT NAME | ☒ SAME
COMPANY
ADDRESS
CITY | STATE | ZIP CODE
PHONE NO. | E-MAIL ADDRESS: tiffany.linder@arcadis.com

PROJECT NO./NAME: 30214036.0470B / RACER Lansing GWS
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Donald Richmond / Donald Richmond

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER _____

DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☒ EDD ☐ OTHER _____

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐ OHIO VAP ☐ Drinking Water ☐ DoD ☐ NPDES
Project Locations: ☐ Detroit ☐ New York ☐ Other _____
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	1,4-Dioxane - 8260 SIMS	VOC - 8260 SIMS	T. Phosphorus	TKN	Nitrate
686501	11/15/24	0950	MW-20-128_111524	GW	3		3						X				
.02	11/15/24	1120	MW-19-124_111524	GW	3		3						X				
.03	11/15/24	1300	MW-19-122_111524	GW	3		3						X				

RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
	Donald Richmond / Arcadis (Sampler)	11/15/24	1445
RECEIVED BY: SIGNATURE/ORGANIZATION	Johanna Murray	11/15/24	1445
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION	DATE	TIME

SEAL NO.	SEAL INTACT YES☐ NO☐	INITIALS
SEAL NO.	SEAL INTACT YES☐ NO☐	INITIALS

NOTES: TEMP. ON ARRIVAL 11.2

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

Analytical Laboratory Report

Report ID: S68651.01(01)+QC01
Generated on 11/25/2024

Report to

Attention: Kaitlyn Hunt
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 C:947-777-5215 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Addtional Contacts: Marina Samp, Tiffany Linder

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S68651.01-S68651.02
Project: 30214036.0470A / RACER Lansing GWS
Collected Date(s): 11/15/2024
Submitted Date/Time: 11/15/2024 14:45
Sampled by: Bill Cobern
P.O. #: US3460020275

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Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Starred (*) analytes are not NY NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.
Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.
All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.
For a specific list of accredited analytes, please feel free to contact the laboratory or visit https://www.meritlabs.com/certifications.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
o	Associated EIS outside of control limits
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
q	Qualifier ion ratio outside of control limits
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
N/A	Not Applicable
SW8260B - SIM	SW 846 Method 8260B Revision 2 December 1996 SIMs

Sample Summary (2 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S68651.01	MW-19-117_111524	Groundwater	11/15/24 11:15
S68651.02	MW-19-120_111524	Groundwater	11/15/24 12:40

Analytical Laboratory Report

Lab Sample ID: S68651.01
Sample Tag: MW-19-117_111524
Collected Date/Time: 11/15/2024 11:15
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	11.2	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/22/24 10:15	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/21/24 20:37, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	Not detected	1		ug/L	1	123-91-1	

Lab Sample ID: S68651.02
Sample Tag: MW-19-120_111524
Collected Date/Time: 11/15/2024 12:40
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	11.2	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/22/24 10:15	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/21/24 23:08, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	8	1		ug/L	1	123-91-1	

Quality Control Report

Report ID: S68651.01(01)+QC01
Generated on 11/22/2024

Report to

Attention: Kaitlyn Hunt
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 C:947-777-5215 FAX:

Report Produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S68651.01-S68651.02
Project: 30214036.0470A / RACER Lansing GWS
Submitted Date/Time: 11/15/2024 14:45
Sampled by: Bill Cobern
P.O. #: US3460020275

QC Report Sections

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Internal Standards per Lab Sample (Pages 13-14)
Internal Standards per QC Sample (Page 15)
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Report Flag Descriptions

*: QC result is outside of indicated control limits
W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.



Barbara Ball
Quality Assurance Manager

QC Report - Analysis Summary

Lab Sample ID: S68651.01
Sample Tag: MW-19-117_111524
Collected Date/Time: 11/15/2024 11:15
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/21/24 20:37	241121A9	VS241121W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S68651.02
Sample Tag: MW-19-120_111524
Collected Date/Time: 11/15/2024 12:40
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/21/24 23:08	241121A9	VS241121W1	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Prep Batch Summary

Organics - Volatiles, Prep Batch ID: VS241121W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S68651.01	1,4-Dioxane	SW8260B - SIM	11/21/24 20:37	241121A9
S68651.02	1,4-Dioxane	SW8260B - SIM	11/21/24 23:08	241121A9

QC Report - Surrogates per QC Sample

Organics - Volatiles, Prep Batch ID: VS241121W1

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 241121A9.BLKW21A

Run in Batch: 241121A9, Run Date: 11/21/2024 19:22, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample (LCS)

Lab Sample ID: 241121A9.LCSW21A

Run in Batch: 241121A9, Run Date: 11/21/2024 17:15, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241121A9.LCSDW21A, Parent Sample ID: 241121A9.LCSW21A

Run in Batch: 241121A9, Run Date: 11/21/2024 17:40, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Matrix Spike (MS)

Lab Sample ID: 241121A9.6868908M, Parent Sample ID: S68689.07

Run in Batch: 241121A9, Run Date: 11/21/2024 18:06, Prep Date: 11/21/2024, Matrix: WW, Dilution: 5

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Matrix Spike Duplicate (MSD)

Lab Sample ID: 241121A9.6868909N, Parent Sample ID: 241121A9.6868908M

Run in Batch: 241121A9, Run Date: 11/21/2024 18:31, Prep Date: 11/21/2024, Matrix: WW, Dilution: 5

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S68651.01

Sample Tag: MW-19-117_111524

Collected Date/Time: 11/15/2024 11:15

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 241121A9, Run Date: 11/21/2024 20:37, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**90.9**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S68651.02

Sample Tag: MW-19-120_111524

Collected Date/Time: 11/15/2024 12:40

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 241121A9, Run Date: 11/21/2024 23:08, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**92.7**	50.0	200.0

QC Report - Internal Standards per QC Sample

Organics - Volatiles, Prep Batch ID: VS241121W1

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 241121A9.BLKW21A

Run in Batch: 241121A9, Run Date: 11/21/2024 19:22, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**89.9**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 241121A9.LCSW21A

Run in Batch: 241121A9, Run Date: 11/21/2024 17:15, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**99.7**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241121A9.LCSDW21A, Parent Sample ID: 241121A9.LCSW21A

Run in Batch: 241121A9, Run Date: 11/21/2024 17:40, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**99.3**	50.0	200.0

Matrix Spike (MS)

Lab Sample ID: 241121A9.6868908M, Parent Sample ID: S68689.07

Run in Batch: 241121A9, Run Date: 11/21/2024 18:06, Prep Date: 11/21/2024, Matrix: WW, Dilution: 5

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**91.7**	50.0	200.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 241121A9.6868909N, Parent Sample ID: 241121A9.6868908M

Run in Batch: 241121A9, Run Date: 11/21/2024 18:31, Prep Date: 11/21/2024, Matrix: WW, Dilution: 5

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**90.4**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VS241121W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 241121A9.BLKW21A

Run in Batch: 241121A9, Run Date: 11/21/2024 19:22, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
1,4-Dioxane		ND	1.00	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 241121A9.LCSW21A

Run in Batch: 241121A9, Run Date: 11/21/2024 17:15, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		95.8	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241121A9.LCSDW21A, Parent Sample ID: 241121A9.LCSW21A

Run in Batch: 241121A9, Run Date: 11/21/2024 17:40, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		100.3	70.0	130.0	4.7	30.0

Matrix Spike (MS)

Lab Sample ID: 241121A9.6868908M, Parent Sample ID: S68689.07

Run in Batch: 241121A9, Run Date: 11/21/2024 18:06, Prep Date: 11/21/2024, Matrix: WW, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		84.9	70.0	130.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 241121A9.6868909N, Parent Sample ID: 241121A9.6868908M

Run in Batch: 241121A9, Run Date: 11/21/2024 18:31, Prep Date: 11/21/2024, Matrix: WW, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		89.2	70.0	130.0	4.3	30.0

Merit Laboratories Login Checklist

Lab Set ID: S68651
Client: ARCADIS_NOVI (ARCADIS U.S., Inc.)
Project: 30214036.0470A / RACER Lansing GWS
Submitted: 11/15/2024 14:45 Login User: PFD

Attention: Kaitlyn Hunt
Address: Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Selection				Description	Note
Sample Receiving					
01.	☐ Yes	☒ No	☐ N/A	Samples are received at 4C +/- 2C Thermometer #	IR 11.2
02.	☒ Yes	☐ No	☐ N/A	Received on ice/ cooling process begun	
03.	☐ Yes	☒ No	☐ N/A	Samples shipped	
04.	☐ Yes	☒ No	☐ N/A	Samples left in 24 hr. drop box	
05.	☐ Yes	☐ No	☒ N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	☒ Yes	☐ No	☐ N/A	COC adequately filled out	
07.	☒ Yes	☐ No	☐ N/A	COC signed and relinquished to the lab	
08.	☒ Yes	☐ No	☐ N/A	Sample tag on bottles match COC	
09.	☐ Yes	☒ No	☐ N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	☒ Yes	☐ No	☐ N/A	Do sample have correct chemical preservation	
11.	☐ Yes	☐ No	☒ N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	☐ Yes	☒ No	☐ N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	☒ Yes	☐ No	☐ N/A	All bottles intact	
14.	☒ Yes	☐ No	☐ N/A	Appropriate analytical bottles are used	
15.	☒ Yes	☐ No	☐ N/A	Merit bottles used	
16.	☒ Yes	☐ No	☐ N/A	Sufficient sample volume received	
17.	☐ Yes	☒ No	☐ N/A	Samples require laboratory filtration	
18.	☒ Yes	☐ No	☐ N/A	Samples submitted within holding time	
19.	☐ Yes	☒ No	☐ N/A	Do water VOC, TOX, DO or Alkalinity bottles contain	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Plant 2

Merit Laboratories, Inc.
2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # _____ OF _____

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Tiffany Linder, Kaitlyn Hunt
COMPANY: Arcadis
ADDRESS: 28550 Cabot Drive, STE 500
CITY: Novi | STATE: MI | ZIP CODE: 48377
PHONE NO.: 947-777-5215 | FAX NO.: | P.O. NO.:
E-MAIL ADDRESS: kaitlyn.hunt@arcadis.com | QUOTE NO.:

INVOICE TO

CONTACT NAME: ☒ SAME
COMPANY:
ADDRESS:
CITY: | STATE: | ZIP CODE:
PHONE NO.: | E-MAIL ADDRESS: tiffany.linder@arcadis.com

PROJECT NO./NAME: 30214036.0470B / RACER Lansing GWS
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Bill Coburn

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER _____

DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☒ EDD ☐ OTHER _____

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐ OHIO VAP ☐ Drinking Water ☐ DoD ☐ NPDES
Project Locations: ☐ Detroit ☐ New York ☐ Other _____
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	1,4-Dioxane - 8260 SIMS	VOC - 8260 SIMS	T. Phosphorus	TKN	Nitrate
686510 1	11/15/24	1115	MW-19-117_111524	GW	3		3						3				
02	11/15/24	1240	MW-19-120_111524	GW	3		3						3				

RELINQUISHED BY: SIGNATURE/ORGANIZATION: Donald Richard/Arcadis ☐ Sampler DATE: 11/15/24 TIME: 1445
RECEIVED BY: SIGNATURE/ORGANIZATION: Johanna Murray DATE: 11/15/24 TIME: 1445
RELINQUISHED BY: SIGNATURE/ORGANIZATION: DATE: TIME:
RECEIVED BY: SIGNATURE/ORGANIZATION: DATE: TIME:

RELINQUISHED BY: SIGNATURE/ORGANIZATION: DATE: TIME:
RECEIVED BY: SIGNATURE/ORGANIZATION: DATE: TIME:

SEAL NO. | SEAL INTACT YES ☐ NO ☐ | INITIALS
SEAL NO. | SEAL INTACT YES ☐ NO ☐ | INITIALS

NOTES: TEMP. ON ARRIVAL _____

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

Analytical Laboratory Report

Report ID: S68652.01(01)+QC01
Generated on 11/25/2024

Report to

Attention: Kaitlyn Hunt
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 C:947-777-5215 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Addtional Contacts: Marina Samp, Tiffany Linder

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S68652.01-S68652.02
Project: 30214036.0470A / RACER Lansing GWS
Collected Date(s): 11/15/2024
Submitted Date/Time: 11/15/2024 14:45
Sampled by: Bill Cobern
P.O. #: 30214036.0047A

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Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Starred (*) analytes are not NY NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.
Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.
All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.
For a specific list of accredited analytes, please feel free to contact the laboratory or visit https://www.meritlabs.com/certifications.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
o	Associated EIS outside of control limits
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
q	Qualifier ion ratio outside of control limits
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
N/A	Not Applicable
SW8260B - SIM	SW 846 Method 8260B Revision 2 December 1996 SIMs

Analytical Laboratory Report

Sample Summary (2 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S68652.01	MW-21-141_111524	Groundwater	11/15/24 09:45
S68652.02	DUP-07_111524	Groundwater	11/15/24 00:01

Lab Sample ID: S68652.01
Sample Tag: MW-21-141_111524
Collected Date/Time: 11/15/2024 09:45
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	11.2	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/22/24 10:15	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/21/24 21:03, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	Not detected	1		ug/L	1	123-91-1	

Lab Sample ID: S68652.02
Sample Tag: DUP-07_111524
Collected Date/Time: 11/15/2024 00:01
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	11.2	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/22/24 10:15	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/22/24 00:50, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	Not detected	1		ug/L	1	123-91-1	

Quality Control Report

Report ID: S68652.01(01)+QC01
Generated on 11/22/2024

Report to

Attention: Kaitlyn Hunt
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 C:947-777-5215 FAX:

Report Produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S68652.01-S68652.02
Project: 30214036.0470A / RACER Lansing GWS
Submitted Date/Time: 11/15/2024 14:45
Sampled by: Bill Cobern
P.O. #: 30214036.0047A

QC Report Sections

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Analysis Summary (Pages 9-10)
Prep Batch Summary (Page 11)
Surrogates per QC Sample (Page 12)
Internal Standards per Lab Sample (Pages 13-14)
Internal Standards per QC Sample (Page 15)
Batch QC Results (Page 16)

Report Flag Descriptions

*: QC result is outside of indicated control limits
W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.

Barbara Ball
Quality Assurance Manager

QC Report - Analysis Summary

Lab Sample ID: S68652.01
Sample Tag: MW-21-141_111524
Collected Date/Time: 11/15/2024 09:45
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/21/24 21:03	241121A9	VS241121W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S68652.02

Sample Tag: DUP-07_111524

Collected Date/Time: 11/15/2024 00:01

Matrix: Groundwater

COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/22/24 00:50	241121A9	VS241121W1	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Prep Batch Summary

Organics - Volatiles, Prep Batch ID: VS241121W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S68652.01	1,4-Dioxane	SW8260B - SIM	11/21/24 21:03	241121A9
S68652.02	1,4-Dioxane	SW8260B - SIM	11/22/24 00:50	241121A9

QC Report - Surrogates per QC Sample

Organics - Volatiles, Prep Batch ID: VS241121W1

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 241121A9.BLKW21A

Run in Batch: 241121A9, Run Date: 11/21/2024 19:22, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample (LCS)

Lab Sample ID: 241121A9.LCSW21A

Run in Batch: 241121A9, Run Date: 11/21/2024 17:15, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241121A9.LCSDW21A, Parent Sample ID: 241121A9.LCSW21A

Run in Batch: 241121A9, Run Date: 11/21/2024 17:40, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Matrix Spike (MS)

Lab Sample ID: 241121A9.6868908M, Parent Sample ID: S68689.07

Run in Batch: 241121A9, Run Date: 11/21/2024 18:06, Prep Date: 11/21/2024, Matrix: WW, Dilution: 5

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Matrix Spike Duplicate (MSD)

Lab Sample ID: 241121A9.6868909N, Parent Sample ID: 241121A9.6868908M

Run in Batch: 241121A9, Run Date: 11/21/2024 18:31, Prep Date: 11/21/2024, Matrix: WW, Dilution: 5

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S68652.01

Sample Tag: MW-21-141_111524

Collected Date/Time: 11/15/2024 09:45

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 241121A9, Run Date: 11/21/2024 21:03, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**93.4**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S68652.02

Sample Tag: DUP-07_111524

Collected Date/Time: 11/15/2024 00:01

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 241121A9, Run Date: 11/22/2024 00:50, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**81.6**	50.0	200.0

QC Report - Internal Standards per QC Sample

Organics - Volatiles, Prep Batch ID: VS241121W1

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 241121A9.BLKW21A

Run in Batch: 241121A9, Run Date: 11/21/2024 19:22, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**89.9**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 241121A9.LCSW21A

Run in Batch: 241121A9, Run Date: 11/21/2024 17:15, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**99.7**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241121A9.LCSDW21A, Parent Sample ID: 241121A9.LCSW21A

Run in Batch: 241121A9, Run Date: 11/21/2024 17:40, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**99.3**	50.0	200.0

Matrix Spike (MS)

Lab Sample ID: 241121A9.6868908M, Parent Sample ID: S68689.07

Run in Batch: 241121A9, Run Date: 11/21/2024 18:06, Prep Date: 11/21/2024, Matrix: WW, Dilution: 5

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**91.7**	50.0	200.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 241121A9.6868909N, Parent Sample ID: 241121A9.6868908M

Run in Batch: 241121A9, Run Date: 11/21/2024 18:31, Prep Date: 11/21/2024, Matrix: WW, Dilution: 5

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**90.4**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VS241121W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 241121A9.BLKW21A

Run in Batch: 241121A9, Run Date: 11/21/2024 19:22, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
1,4-Dioxane		ND	1.00	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 241121A9.LCSW21A

Run in Batch: 241121A9, Run Date: 11/21/2024 17:15, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		95.8	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241121A9.LCSDW21A, Parent Sample ID: 241121A9.LCSW21A

Run in Batch: 241121A9, Run Date: 11/21/2024 17:40, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		100.3	70.0	130.0	4.7	30.0

Matrix Spike (MS)

Lab Sample ID: 241121A9.6868908M, Parent Sample ID: S68689.07

Run in Batch: 241121A9, Run Date: 11/21/2024 18:06, Prep Date: 11/21/2024, Matrix: WW, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		84.9	70.0	130.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 241121A9.6868909N, Parent Sample ID: 241121A9.6868908M

Run in Batch: 241121A9, Run Date: 11/21/2024 18:31, Prep Date: 11/21/2024, Matrix: WW, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		89.2	70.0	130.0	4.3	30.0

Merit Laboratories Login Checklist

Lab Set ID: S68652
Client: ARCADIS_NOVI (ARCADIS U.S., Inc.)
Project: 30214036.0470A / RACER Lansing GWS
Submitted: 11/15/2024 14:45 Login User: PFD

Attention: Kaitlyn Hunt
Address: Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Selection				Description	Note
Sample Receiving					
01.	☐ Yes	☒ No	☐ N/A	Samples are received at 4C +/- 2C Thermometer #	IR 11.2
02.	☒ Yes	☐ No	☐ N/A	Received on ice/ cooling process begun	
03.	☐ Yes	☒ No	☐ N/A	Samples shipped	
04.	☐ Yes	☒ No	☐ N/A	Samples left in 24 hr. drop box	
05.	☐ Yes	☐ No	☒ N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	☒ Yes	☐ No	☐ N/A	COC adequately filled out	
07.	☒ Yes	☐ No	☐ N/A	COC signed and relinquished to the lab	
08.	☒ Yes	☐ No	☐ N/A	Sample tag on bottles match COC	
09.	☐ Yes	☒ No	☐ N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	☒ Yes	☐ No	☐ N/A	Do sample have correct chemical preservation	
11.	☐ Yes	☐ No	☒ N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	☐ Yes	☒ No	☐ N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	☒ Yes	☐ No	☐ N/A	All bottles intact	
14.	☒ Yes	☐ No	☐ N/A	Appropriate analytical bottles are used	
15.	☒ Yes	☐ No	☐ N/A	Merit bottles used	
16.	☒ Yes	☐ No	☐ N/A	Sufficient sample volume received	
17.	☐ Yes	☒ No	☐ N/A	Samples require laboratory filtration	
18.	☒ Yes	☐ No	☐ N/A	Samples submitted within holding time	
19.	☐ Yes	☒ No	☐ N/A	Do water VOC, TOX, DO or Alkalinity bottles contain	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Plant __6__

Merit Laboratories, Inc.
2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # _____ OF _____

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Tiffany Linder, Kaitlyn Hunt
COMPANY: Arcadis
ADDRESS: 28550 Cabot Drive, STE 500
CITY: Novi STATE: MI ZIP CODE: 48377
PHONE NO.: 947-777-5215 FAX NO.: P.O. NO.:
E-MAIL ADDRESS: kaitlyn.hunt@arcadis.com QUOTE NO.:

INVOICE TO

CONTACT NAME: ☒ SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: E-MAIL ADDRESS: tiffany.linder@arcadis.com

PROJECT NO./NAME: 30214036.00102/ RACER Lansing GWS
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Bill Coburn

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER _____

DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☒ EDD ☐ OTHER _____

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐ OHIO VAP ☐ Drinking Water ☐ DoD ☐ NPDES
Project Locations: ☐ Detroit ☐ New York ☐ Other _____
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	1,4-Dioxane - 8260 SIMS	VOC - 8260 SIMS
686520.01	11/15/24	0945	MW-21-141-111524	GW	3		3						3	
.02	11/15/24	—	Dup-07-111524	GW	3		3						3	

RELINQUISHED BY: SIGNATURE/ORGANIZATION: Donald Tschumi / Arcadis (Sampler) DATE: 11/15/24 TIME: 1445
RECEIVED BY: SIGNATURE/ORGANIZATION: Johanna Mulvey DATE: 11/15/24 TIME: 1445
RELINQUISHED BY: SIGNATURE/ORGANIZATION: DATE: TIME:
RECEIVED BY: SIGNATURE/ORGANIZATION: DATE: TIME:

RELINQUISHED BY: SIGNATURE/ORGANIZATION: DATE: TIME:
RECEIVED BY: SIGNATURE/ORGANIZATION: DATE: TIME:

SEAL NO.: SEAL INTACT YES ☐ NO ☐ INITIALS:
SEAL NO.: SEAL INTACT YES ☐ NO ☐ INITIALS:

NOTES: TEMP. ON ARRIVAL 11.2

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

Analytical Laboratory Report

Report ID: S68689.01(01)+QC01
Generated on 11/25/2024

Report to

Attention: Kaitlyn Hunt
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 C:947-777-5215 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Addtional Contacts: Marina Samp, Tiffany Linder

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S68689.01-S68689.11
Project: 30214036.0470B / RACER Lansing GWS
Collected Date(s): 11/18/2024
Submitted Date/Time: 11/18/2024 16:45
Sampled by: Unknown
P.O. #: US3460020275

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Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Starred (*) analytes are not NY NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.
Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.
All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.
For a specific list of accredited analytes, please feel free to contact the laboratory or visit https://www.meritlabs.com/certifications.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
o	Associated EIS outside of control limits
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
q	Qualifier ion ratio outside of control limits
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
E300.0	EPA Method 300.0 Revision 2.1 (1993)
N/A	Not Applicable
SM4500-N/NH3 G	Standard Method 4500 N(org)B 2021 / 4500 NH3 G 2021
SM4500-PE	Standard Method 4500 P E 2021 / 4500 P B(5) 2021
SW8260B - SIM	SW 846 Method 8260B Revision 2 December 1996 SIMs

Sample Summary (11 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S68689.01	MW-12-21_111824	Groundwater	11/18/24 10:35
S68689.02	MW-13-22_111824	Groundwater	11/18/24 12:10
S68689.03	AS-19-A06_111824	Groundwater	11/18/24 11:45
S68689.04	MW-13-29_111824	Groundwater	11/18/24 13:10
S68689.05	AS-19-A05_111824	Groundwater	11/18/24 13:00
S68689.06	MW-13-34_111824	Groundwater	11/18/24 15:05
S68689.07	TW-15-11_111824	Groundwater	11/18/24 14:25
S68689.08	TW-15-11_111824 MS	Groundwater	11/18/24 14:25
S68689.09	TW-15-11_111824 MSD	Groundwater	11/18/24 14:25
S68689.10	MW-13-48_111824	Groundwater	11/18/24 16:10
S68689.11	Dup-04_111824	Groundwater	11/18/24 00:01

Lab Sample ID: S68689.01
Sample Tag: MW-12-21_111824
Collected Date/Time: 11/18/2024 10:35
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.9	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/22/24 10:15	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/22/24 04:11, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	160	1		ug/L	1	123-91-1	

Lab Sample ID: S68689.02
Sample Tag: MW-13-22_111824
Collected Date/Time: 11/18/2024 12:10
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.9	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/22/24 10:15	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/22/24 15:35, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	173	5		ug/L	5	123-91-1	Y

Y-Elevated reporting limit due to high target concentration

Lab Sample ID: S68689.03
Sample Tag: AS-19-A06_111824
Collected Date/Time: 11/18/2024 11:45
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.9	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/22/24 10:15	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/21/24 21:28, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	2	1		ug/L	1	123-91-1	

Lab Sample ID: S68689.04
Sample Tag: MW-13-29_111824
Collected Date/Time: 11/18/2024 13:10
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.9	IR
1	250mL Plastic	H2SO4	Yes	5.9	IR
1	125mL Plastic	None	Yes	5.9	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/22/24 10:15	NDK	

Inorganics

Method: E300.0, Run Date: 11/20/24 10:58, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Nitrate-N	Not detected	0.50		mg/L	5	14797-55-8	

Method: SM4500-N/NH3 G, Run Date: 11/22/24 13:20, Analyst: MJC

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Kjeldahl Nitrogen*	0.4	0.1		mg/L	4		

Method: SM4500-PE, Run Date: 11/22/24 16:10, Analyst: MJC

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Phosphorus*	0.01	0.01	0.009	mg/L	1	7723-14-0	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/21/24 23:59, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	6	1		ug/L	1	123-91-1	

Lab Sample ID: S68689.05
Sample Tag: AS-19-A05_111824
Collected Date/Time: 11/18/2024 13:00
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.9	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/22/24 10:15	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/21/24 22:43, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	2	1		ug/L	1	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S68689.06
Sample Tag: MW-13-34_111824
Collected Date/Time: 11/18/2024 15:05
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.9	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/22/24 10:15	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/22/24 03:20, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	101	1		ug/L	1	123-91-1	

Analytical Laboratory Report

Lab Sample ID: S68689.07
Sample Tag: TW-15-11_111824
Collected Date/Time: 11/18/2024 14:25
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.9	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/22/24 10:15	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/22/24 15:09, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	26	1		ug/L	1	123-91-1	

Lab Sample ID: S68689.08
Sample Tag: TW-15-11_111824 MS
Collected Date/Time: 11/18/2024 14:25
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.9	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/22/24 10:15	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/22/24 13:03, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	62	1		ug/L	1	123-91-1	1

1-Spiked at 50 mg/L

Lab Sample ID: S68689.09
Sample Tag: TW-15-11_111824 MSD
Collected Date/Time: 11/18/2024 14:25
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.9	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/22/24 10:15	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/22/24 13:28, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	66	1		ug/L	1	123-91-1	1

1-Spiked at 50 mg/L

Lab Sample ID: S68689.10
Sample Tag: MW-13-48_111824
Collected Date/Time: 11/18/2024 16:10
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.9	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/22/24 10:15	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/22/24 02:55, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	94	1		ug/L	1	123-91-1	

Lab Sample ID: S68689.11
Sample Tag: Dup-04_111824
Collected Date/Time: 11/18/2024 00:01
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.9	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/22/24 10:15	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/22/24 01:40, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	115	1		ug/L	1	123-91-1	

Quality Control Report

Report ID: S68689.01(01)+QC01
Generated on 11/25/2024

Report to

Attention: Kaitlyn Hunt
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 C:947-777-5215 FAX:

Report Produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S68689.01-S68689.11
Project: 30214036.0470B / RACER Lansing GWS
Submitted Date/Time: 11/18/2024 16:45
Sampled by: Unknown
P.O. #: US3460020275

QC Report Sections

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Analysis Summary (Pages 18-28)
Prep Batch Summary (Page 29)
Surrogates per QC Sample (Pages 30-31)
Internal Standards per Lab Sample (Pages 32-40)
Internal Standards per QC Sample (Pages 41-42)
Batch QC Results (Pages 43-47)

Report Flag Descriptions

*: QC result is outside of indicated control limits
W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.

Barbara Ball
Quality Assurance Manager

Lab Sample ID: S68689.01
Sample Tag: MW-12-21_111824
Collected Date/Time: 11/18/2024 10:35
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/22/24 04:11	241121A9	VS241121W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S68689.02
Sample Tag: MW-13-22_111824
Collected Date/Time: 11/18/2024 12:10
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/22/24 15:35	241122A9	VS241122W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S68689.03
Sample Tag: AS-19-A06_111824
Collected Date/Time: 11/18/2024 11:45
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/21/24 21:28	241121A9	VS241121W1	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Analysis Summary

Lab Sample ID: S68689.04
Sample Tag: MW-13-29_111824
Collected Date/Time: 11/18/2024 13:10
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Inorganics						
Nitrate-N	E300.0	11/20/24 10:58	NTRA241120-W1-A	NTRA241120-W1-A	No	BLK/LCS/MS/MSD/DU
Total Kjeldahl Nitrogen	SM4500-N/NH3 G	11/22/24 13:20	TKN241122B	TKN241122B	No	BLK/LCS/MS/DUP
Total Phosphorus	SM4500-PE	11/22/24 16:10	PHS241122QC	PHS241122QC	No	BLK/LCS/MS/DUP
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/21/24 23:59	241121A9	VS241121W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S68689.05
Sample Tag: AS-19-A05_111824
Collected Date/Time: 11/18/2024 13:00
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/21/24 22:43	241121A9	VS241121W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S68689.06
Sample Tag: MW-13-34_111824
Collected Date/Time: 11/18/2024 15:05
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/22/24 03:20	241121A9	VS241121W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S68689.07
Sample Tag: TW-15-11_111824
Collected Date/Time: 11/18/2024 14:25
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/22/24 15:09	241122A9	VS241122W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S68689.08
Sample Tag: TW-15-11_111824 MS
Collected Date/Time: 11/18/2024 14:25
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/22/24 13:03	241122A9	VS241122W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S68689.09
Sample Tag: TW-15-11_111824 MSD
Collected Date/Time: 11/18/2024 14:25
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/22/24 13:28	241122A9	VS241122W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S68689.10
Sample Tag: MW-13-48_111824
Collected Date/Time: 11/18/2024 16:10
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/22/24 02:55	241121A9	VS241121W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S68689.11
Sample Tag: Dup-04_111824
Collected Date/Time: 11/18/2024 00:01
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/22/24 01:40	241121A9	VS241121W1	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Prep Batch Summary

Inorganics, Prep Batch ID: NTRA241120-W1-A

Surrogates: No, QC Types: BLK/LCS/MS/MSD/DUP

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S68689.04	Nitrate-N	E300.0	11/20/24 10:58	NTRA241120-W1-A

Inorganics, Prep Batch ID: PHS241122QC

Surrogates: No, QC Types: BLK/LCS/MS/DUP

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S68689.04	Total Phosphorus	SM4500-PE	11/22/24 16:10	PHS241122QC

Inorganics, Prep Batch ID: TKN241122B

Surrogates: No, QC Types: BLK/LCS/MS/DUP

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S68689.04	Total Kjeldahl Nitrogen	SM4500-N/NH3 G	11/22/24 13:20	TKN241122B

Organics - Volatiles, Prep Batch ID: VS241121W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S68689.01	1,4-Dioxane	SW8260B - SIM	11/22/24 04:11	241121A9
S68689.03	1,4-Dioxane	SW8260B - SIM	11/21/24 21:28	241121A9
S68689.04	1,4-Dioxane	SW8260B - SIM	11/21/24 23:59	241121A9
S68689.05	1,4-Dioxane	SW8260B - SIM	11/21/24 22:43	241121A9
S68689.06	1,4-Dioxane	SW8260B - SIM	11/22/24 03:20	241121A9
S68689.10	1,4-Dioxane	SW8260B - SIM	11/22/24 02:55	241121A9
S68689.11	1,4-Dioxane	SW8260B - SIM	11/22/24 01:40	241121A9

Organics - Volatiles, Prep Batch ID: VS241122W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S68689.02	1,4-Dioxane	SW8260B - SIM	11/22/24 15:35	241122A9
S68689.07	1,4-Dioxane	SW8260B - SIM	11/22/24 15:09	241122A9
S68689.08	1,4-Dioxane	SW8260B - SIM	11/22/24 13:03	241122A9
S68689.09	1,4-Dioxane	SW8260B - SIM	11/22/24 13:28	241122A9

Organics - Volatiles, Prep Batch ID: VS241121W1

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 241121A9.BLKW21A

Run in Batch: 241121A9, Run Date: 11/21/2024 19:22, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample (LCS)

Lab Sample ID: 241121A9.LCSW21A

Run in Batch: 241121A9, Run Date: 11/21/2024 17:15, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241121A9.LCSDW21A, Parent Sample ID: 241121A9.LCSW21A

Run in Batch: 241121A9, Run Date: 11/21/2024 17:40, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Matrix Spike (MS)

Lab Sample ID: 241121A9.6868908M, Parent Sample ID: S68689.07

Run in Batch: 241121A9, Run Date: 11/21/2024 18:06, Prep Date: 11/21/2024, Matrix: WW, Dilution: 5

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Matrix Spike Duplicate (MSD)

Lab Sample ID: 241121A9.6868909N, Parent Sample ID: 241121A9.6868908M

Run in Batch: 241121A9, Run Date: 11/21/2024 18:31, Prep Date: 11/21/2024, Matrix: WW, Dilution: 5

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Organics - Volatiles, Prep Batch ID: VS241122W1

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 241122A9.BLKW22A

Run in Batch: 241122A9, Run Date: 11/22/2024 14:44, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample (LCS)

Lab Sample ID: 241122A9.LCSW22A

Run in Batch: 241122A9, Run Date: 11/22/2024 12:13, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241122A9.LCSDW22A, Parent Sample ID: 241122A9.LCSW22A

Run in Batch: 241122A9, Run Date: 11/22/2024 12:38, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Lab Sample ID: S68689.01

Sample Tag: MW-12-21_111824

Collected Date/Time: 11/18/2024 10:35

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 241121A9, Run Date: 11/22/2024 04:11, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**92.2**	50.0	200.0

Lab Sample ID: S68689.02

Sample Tag: MW-13-22_111824

Collected Date/Time: 11/18/2024 12:10

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 241122A9, Run Date: 11/22/2024 15:35, Matrix: WW, Dilution: 5

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**100.9**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S68689.03

Sample Tag: AS-19-A06_111824

Collected Date/Time: 11/18/2024 11:45

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 241121A9, Run Date: 11/21/2024 21:28, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**86.2**	50.0	200.0

Lab Sample ID: S68689.04

Sample Tag: MW-13-29_111824

Collected Date/Time: 11/18/2024 13:10

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 241121A9, Run Date: 11/21/2024 23:59, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**91.6**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S68689.05

Sample Tag: AS-19-A05_111824

Collected Date/Time: 11/18/2024 13:00

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 241121A9, Run Date: 11/21/2024 22:43, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**94.5**	50.0	200.0

Lab Sample ID: S68689.06

Sample Tag: MW-13-34_111824

Collected Date/Time: 11/18/2024 15:05

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 241121A9, Run Date: 11/22/2024 03:20, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**98.6**	50.0	200.0

Lab Sample ID: S68689.07

Sample Tag: TW-15-11_111824

Collected Date/Time: 11/18/2024 14:25

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 241122A9, Run Date: 11/22/2024 15:09, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**103.7**	50.0	200.0

Lab Sample ID: S68689.10

Sample Tag: MW-13-48_111824

Collected Date/Time: 11/18/2024 16:10

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 241121A9, Run Date: 11/22/2024 02:55, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**99.3**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S68689.11

Sample Tag: Dup-04_111824

Collected Date/Time: 11/18/2024 00:01

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 241121A9, Run Date: 11/22/2024 01:40, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**88.3**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VS241121W1

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 241121A9.BLKW21A

Run in Batch: 241121A9, Run Date: 11/21/2024 19:22, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**89.9**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 241121A9.LCSW21A

Run in Batch: 241121A9, Run Date: 11/21/2024 17:15, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**99.7**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241121A9.LCSDW21A, Parent Sample ID: 241121A9.LCSW21A

Run in Batch: 241121A9, Run Date: 11/21/2024 17:40, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**99.3**	50.0	200.0

Matrix Spike (MS)

Lab Sample ID: 241121A9.6868908M, Parent Sample ID: S68689.07

Run in Batch: 241121A9, Run Date: 11/21/2024 18:06, Prep Date: 11/21/2024, Matrix: WW, Dilution: 5

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**91.7**	50.0	200.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 241121A9.6868909N, Parent Sample ID: 241121A9.6868908M

Run in Batch: 241121A9, Run Date: 11/21/2024 18:31, Prep Date: 11/21/2024, Matrix: WW, Dilution: 5

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**90.4**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VS241122W1

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 241122A9.BLKW22A

Run in Batch: 241122A9, Run Date: 11/22/2024 14:44, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**102.3**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 241122A9.LCSW22A

Run in Batch: 241122A9, Run Date: 11/22/2024 12:13, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**99.9**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241122A9.LCSDW22A, Parent Sample ID: 241122A9.LCSW22A

Run in Batch: 241122A9, Run Date: 11/22/2024 12:38, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**100.1**	50.0	200.0

Inorganics, Prep Batch ID: NTRA241120-W1-A

Surrogates: No, QC Types: BLK/LCS/MS/MSD/DUP

Blank (BLK)

Lab Sample ID: NTRA241120-W1-A.LRB1

Run in Batch: NTRA241120-W1-A, Run Date: 11/11/2024 20:15, Prep Date: 11/11/2024, Matrix: Liquid, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Nitrate-N		ND	0.10	mg/L

Laboratory Control Sample (LCS)

Lab Sample ID: NTRA241120-W1-A.LCS1

Run in Batch: NTRA241120-W1-A, Run Date: 11/11/2024 10:47, Prep Date: 11/11/2024, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Nitrate-N		91.0	90	110

Matrix Spike (MS)

Lab Sample ID: NTRA241120-W1-A.MS1, Parent Sample ID: S68692.01

Run in Batch: NTRA241120-W1-A, Run Date: 11/11/2024 13:44, Prep Date: 11/11/2024, Matrix: Liquid, Dilution: 10

Analyte	Flags	% Rec	LCL	UCL
Nitrate-N		113.1	80	120

Matrix Spike Duplicate (MSD)

Lab Sample ID: NTRA241120-W1-A.MSD1, Parent Sample ID: NTRA241120-W1-A.MS1

Run in Batch: NTRA241120-W1-A, Run Date: 11/11/2024 13:54, Prep Date: 11/11/2024, Matrix: Liquid, Dilution: 10

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Nitrate-N		111.7	80	120	1	15

Duplicate (DUP)

Lab Sample ID: NTRA241120-W1-A.DP1, Parent Sample ID: S68692.01

Run in Batch: NTRA241120-W1-A, Run Date: 11/11/2024 13:31, Prep Date: 11/11/2024, Matrix: Liquid, Dilution: 10

Analyte	Flags	RPD	RPD CL
Nitrate-N		0.7	15

Inorganics, Prep Batch ID: PHS241122QC

Surrogates: No, QC Types: BLK/LCS/MS/DUP

Blank (BLK)

Lab Sample ID: PHS241122QC.LRB1

Run in Batch: PHS241122QC, Run Date: 11/22/2024 15:37, Prep Date: 11/22/2024, Matrix: Liquid, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Total Phosphorus		ND	0.01	mg/L

Blank (BLK)

Lab Sample ID: PHS241122QC.LRB2

Run in Batch: PHS241122QC, Run Date: 11/22/2024 15:43, Prep Date: 11/22/2024, Matrix: Liquid, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Total Phosphorus		ND	0.01	mg/L

Laboratory Control Sample (LCS)

Lab Sample ID: PHS241122QC.LCS1

Run in Batch: PHS241122QC, Run Date: 11/22/2024 15:51, Prep Date: 11/22/2024, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Total Phosphorus		100	90	110

Matrix Spike (MS)

Lab Sample ID: PHS241122QC.MS1, Parent Sample ID: S68731.01

Run in Batch: PHS241122QC, Run Date: 11/22/2024 19:54, Prep Date: 11/22/2024, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Total Phosphorus		101	80	120

Duplicate (DUP)

Lab Sample ID: PHS241122QC.DP1, Parent Sample ID: S68783.11

Run in Batch: PHS241122QC, Run Date: 11/22/2024 19:51, Prep Date: 11/22/2024, Matrix: Liquid, Dilution: 1

Analyte	Flags	RPD	RPD CL
Total Phosphorus		2.9	20

Inorganics, Prep Batch ID: TKN241122B

Surrogates: No, QC Types: BLK/LCS/MS/DUP

Blank (BLK)

Lab Sample ID: TKN241122B.LRB1

Run in Batch: TKN241122B, Run Date: 11/22/2024 12:52, Prep Date: 11/22/2024, Matrix: Liquid, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Total Kjeldahl Nitrogen		ND	0.02	mg/L

Blank (BLK)

Lab Sample ID: TKN241122B.LRB2

Run in Batch: TKN241122B, Run Date: 11/22/2024 13:00, Prep Date: 11/22/2024, Matrix: Liquid, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Total Kjeldahl Nitrogen		ND	0.1	mg/L

Laboratory Control Sample (LCS)

Lab Sample ID: TKN241122B.LCS1

Run in Batch: TKN241122B, Run Date: 11/22/2024 13:04, Prep Date: 11/22/2024, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Total Kjeldahl Nitrogen		102.2	90	110

Matrix Spike (MS)

Lab Sample ID: TKN241122B.MS1, Parent Sample ID: S68689.04

Run in Batch: TKN241122B, Run Date: 11/22/2024 13:22, Prep Date: 11/22/2024, Matrix: Liquid, Dilution: 4

Analyte	Flags	% Rec	LCL	UCL
Total Kjeldahl Nitrogen		115.2	80	120

Duplicate (DUP)

Lab Sample ID: TKN241122B.DP1, Parent Sample ID: S68728.02

Run in Batch: TKN241122B, Run Date: 11/22/2024 13:44, Prep Date: 11/22/2024, Matrix: Liquid, Dilution: 50

Analyte	Flags	RPD	RPD CL
Total Kjeldahl Nitrogen		1.2	20

Organics - Volatiles, Prep Batch ID: VS241121W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 241121A9.BLKW21A

Run in Batch: 241121A9, Run Date: 11/21/2024 19:22, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
1,4-Dioxane		ND	1.00	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 241121A9.LCSW21A

Run in Batch: 241121A9, Run Date: 11/21/2024 17:15, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		95.8	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241121A9.LCSDW21A, Parent Sample ID: 241121A9.LCSW21A

Run in Batch: 241121A9, Run Date: 11/21/2024 17:40, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		100.3	70.0	130.0	4.7	30.0

Matrix Spike (MS)

Lab Sample ID: 241121A9.6868908M, Parent Sample ID: S68689.07

Run in Batch: 241121A9, Run Date: 11/21/2024 18:06, Prep Date: 11/21/2024, Matrix: WW, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		84.9	70.0	130.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 241121A9.6868909N, Parent Sample ID: 241121A9.6868908M

Run in Batch: 241121A9, Run Date: 11/21/2024 18:31, Prep Date: 11/21/2024, Matrix: WW, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		89.2	70.0	130.0	4.3	30.0

Organics - Volatiles, Prep Batch ID: VS241122W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 241122A9.BLKW22A

Run in Batch: 241122A9, Run Date: 11/22/2024 14:44, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
1,4-Dioxane		ND	1.00	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 241122A9.LCSW22A

Run in Batch: 241122A9, Run Date: 11/22/2024 12:13, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		98.5	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241122A9.LCSDW22A, Parent Sample ID: 241122A9.LCSW22A

Run in Batch: 241122A9, Run Date: 11/22/2024 12:38, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		98.9	70.0	130.0	0.4	30.0

Merit Laboratories Login Checklist

Lab Set ID: S68689
Client: ARCADIS_NOVI (ARCADIS U.S., Inc.)
Project: 30214036.0470B / RACER Lansing GWS
Submitted: 11/18/2024 16:45 Login User: MMC

Attention: Kaitlyn Hunt
Address: Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 5.9
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[ ] Yes	[X] No	[ ] N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	[X] Yes	[ ] No	[ ] N/A	Do sample have correct chemical preservation	
11.	[X] Yes	[ ] No	[ ] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[ ] Yes	[X] No	[ ] N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[ ] Yes	[X] No	[ ] N/A	Samples require laboratory filtration	
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[X] No	[ ] N/A	Do water VOC, TOX, DO or Alkalinity bottles contain	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories Bottle Preservation Check

Lab Set ID: S68689 Submitted: 11/18/2024 16:45
Client: ARCADIS_NOVI (ARCADIS U.S., Inc.)
Project: 30214036.0470B / RACER Lansing GWS

Initial Preservation Check: 11/18/2024 16:55 MMC
Preservation Recheck (E200.8): N/A

Attention: Kaitlyn Hunt
Address: Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Sample ID	Bottle / Preservation	pH (Orig)	Add ml	pH (New)	Notes
S68689.04	250mL Plastic H2SO4	<2			

Plant 3

Merit Laboratories, Inc.
2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # _____ OF _____

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Tiffany Linder, Kaitlyn Hunt
COMPANY: Arcadis
ADDRESS: 28550 Cabot Drive, STE 500
CITY: Novi | STATE: MI | ZIP CODE: 48377
PHONE NO.: 947-777-5215 | FAX NO.: | P.O. NO.:
E-MAIL ADDRESS: kaitlyn.hunt@arcadis.com | QUOTE NO.:

INVOICE TO

CONTACT NAME: ☒ SAME
COMPANY:
ADDRESS:
CITY: | STATE: | ZIP CODE:
PHONE NO.: | E-MAIL ADDRESS: tiffany.linder@arcadis.com

PROJECT NO./NAME: 30214036.04708 / RACER Lansing GWS
SAMPLER(S) - PLEASE PRINT/SIGN NAME:

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER _____

DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☒ EDD ☐ OTHER _____

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐ OHIO VAP ☐ Drinking Water ☐ DoD ☐ NPDES
Project Locations: ☐ Detroit ☐ New York ☐ Other _____
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	1,4-Dioxane - 8260 SIMS	VOC - 8260 SIMS	T. Phosphorus	TKN	Nitrate	Special Instructions
686689.01	11/18/24	1035	MW-12-21_111824	GW	3		3						X					
.02	11/18/24	1210	MW-13-22_111824	GW	3		3						X					
.03	11/18/24	1145	AS-19-A06_111824	GW	3		3						X					
.04	11/18/24	1310	MW-13-29_111824	GW	3	1	3		1				X		X	X	X	
.05	11/18/24	1300	AS-19-A05_111824	GW	3		3						X					
.06	11/18/24	1505	MW-13-34_111824	GW	3		3						X					
07/08/09	11/18/24	1425	TW-15-11_111824	GW	9		9						X					F MS MSD
.10	11/18/24	1610	MW-13-48_111824	GW	3		3						X					
.11	11/18/24	—	Dup-04_111824	GW	3		3						X					

		DATE	TIME
RELINQUISHED BY: SIGNATURE/ORGANIZATION	Donald Pierce / Arcadis (Sampler)	11/18/24	1645
RECEIVED BY: SIGNATURE/ORGANIZATION	M Chilcote	11/18/24	1645
RELINQUISHED BY: SIGNATURE/ORGANIZATION			
RECEIVED BY: SIGNATURE/ORGANIZATION			

RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
SEAL NO.	SEAL INTACT YES☐ NO☐	INITIALS	
SEAL NO.	SEAL INTACT YES☐ NO☐	INITIALS	

NOTES: TEMP. ON ARRIVAL 5.9

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

Analytical Laboratory Report

Report ID: S68769.01(01)+QC01
Generated on 11/25/2024

Report to

Attention: Kaitlyn Hunt
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 C:947-777-5215 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Addtional Contacts: Marina Samp, Tiffany Linder

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John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S68769.01-S68769.07
Project: 30214036.0470A / RACER Lansing GWS
Collected Date(s): 11/20/2024
Submitted Date/Time: 11/20/2024 14:50
Sampled by: Unknown
P.O. #: US3460020275

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Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Starred (*) analytes are not NY NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.
Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.
All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.
For a specific list of accredited analytes, please feel free to contact the laboratory or visit https://www.meritlabs.com/certifications.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
o	Associated EIS outside of control limits
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
q	Qualifier ion ratio outside of control limits
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
N/A	Not Applicable
SW5030C/8260C	SW 846 Method 8260C Revision 3 August 2006 / 5030C Revision 3 May 2003

Sample Summary (7 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S68769.01	MW-22-154_112024	Groundwater	11/20/24 10:05
S68769.02	MW-22-154_112024 MS	Groundwater	11/20/24 10:05
S68769.03	MW-22-154_112024 MSD	Groundwater	11/20/24 10:05
S68769.04	MW-22-152_112024	Groundwater	11/20/24 11:30
S68769.05	MW-04-05(6)_112024	Groundwater	11/20/24 13:30
S68769.06	Dup-05_112024	Groundwater	11/20/24 00:01
S68769.07	Dup-09_112024	Groundwater	11/20/24 00:01

Lab Sample ID: S68769.01
Sample Tag: MW-22-154_112024
Collected Date/Time: 11/20/2024 10:05
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/25/24 12:10	NDK	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/22/24 17:07, Analyst: ACK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	3	1		ug/L	1	156-59-2	
Tetrahydrofuran	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	

Lab Sample ID: S68769.01 (continued)
Sample Tag: MW-22-154_112024

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/22/24 17:07, Analyst: ACK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Lab Sample ID: S68769.02
Sample Tag: MW-22-154_112024 MS
Collected Date/Time: 11/20/2024 10:05
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/25/24 12:10	NDK	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/22/24 12:51, Analyst: ACK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	52	10		ug/L	1	60-29-7	1
Acetone	51	50		ug/L	1	67-64-1	1
Methyl iodide	50	1		ug/L	1	74-88-4	1
Carbon disulfide	52	5		ug/L	1	75-15-0	1
tert-Methyl butyl ether (MTBE)	55	5		ug/L	1	1634-04-4	1
Acrylonitrile	55	2		ug/L	1	107-13-1	1
2-Butanone (MEK)	51	25		ug/L	1	78-93-3	1
Dichlorodifluoromethane	50	5		ug/L	1	75-71-8	1
Chloromethane	53	5		ug/L	1	74-87-3	1
Vinyl chloride	52	1		ug/L	1	75-01-4	1
Bromomethane	63	5		ug/L	1	74-83-9	1
Chloroethane	49	5		ug/L	1	75-00-3	1
Trichlorofluoromethane	51	1		ug/L	1	75-69-4	1
1,1-Dichloroethene	51	1		ug/L	1	75-35-4	1
Methylene chloride	53	5		ug/L	1	75-09-2	1
trans-1,2-Dichloroethene	54	1		ug/L	1	156-60-5	1
1,1-Dichloroethane	53	1		ug/L	1	75-34-3	1
cis-1,2-Dichloroethene	56	1		ug/L	1	156-59-2	1
Tetrahydrofuran	Not detected	90		ug/L	1	109-99-9	1
Chloroform	53	1		ug/L	1	67-66-3	1
Bromochloromethane	53	1		ug/L	1	74-97-5	1
1,1,1-Trichloroethane	52	1		ug/L	1	71-55-6	1
4-Methyl-2-pentanone (MIBK)	57	50		ug/L	1	108-10-1	1
2-Hexanone	59	50		ug/L	1	591-78-6	1
Carbon tetrachloride	51	1		ug/L	1	56-23-5	1
Benzene	52	1		ug/L	1	71-43-2	1
1,2-Dichloroethane	52	1		ug/L	1	107-06-2	1
Trichloroethene	52	1		ug/L	1	79-01-6	1
1,2-Dichloropropane	53	1		ug/L	1	78-87-5	1
Bromodichloromethane	54	1		ug/L	1	75-27-4	1
Dibromomethane	52	5		ug/L	1	74-95-3	1
cis-1,3-Dichloropropene	53	1		ug/L	1	10061-01-5	1
Toluene	52	1		ug/L	1	108-88-3	1
trans-1,3-Dichloropropene	54	1		ug/L	1	10061-02-6	1
1,1,2-Trichloroethane	53	1		ug/L	1	79-00-5	1
Tetrachloroethene	51	1		ug/L	1	127-18-4	1

1-Spiked at 50 ug/L

Lab Sample ID: S68769.02 (continued)
Sample Tag: MW-22-154_112024 MS

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/22/24 12:51, Analyst: ACK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
trans-1,4-Dichloro-2-butene	59	1		ug/L	1	110-57-6	1
Dibromochloromethane	51	5		ug/L	1	124-48-1	1
1,2-Dibromoethane	52	1		ug/L	1	106-93-4	1
Chlorobenzene	52	1		ug/L	1	108-90-7	1
1,1,1,2-Tetrachloroethane	51	1		ug/L	1	630-20-6	1
Ethylbenzene	52	1		ug/L	1	100-41-4	1
p,m-Xylene	104	2		ug/L	1		1
o-Xylene	52	1		ug/L	1	95-47-6	1
Styrene	52	1		ug/L	1	100-42-5	1
Isopropylbenzene	52	5		ug/L	1	98-82-8	1
Bromoform	51	1		ug/L	1	75-25-2	1
1,1,2,2-Tetrachloroethane	53	1		ug/L	1	79-34-5	1
1,2,3-Trichloropropane	53	1		ug/L	1	96-18-4	1
n-Propylbenzene	53	1		ug/L	1	103-65-1	1
Bromobenzene	52	1		ug/L	1	108-86-1	1
1,3,5-Trimethylbenzene	52	1		ug/L	1	108-67-8	1
tert-Butylbenzene	52	1		ug/L	1	98-06-6	1
1,2,4-Trimethylbenzene	52	1		ug/L	1	95-63-6	1
sec-Butylbenzene	52	1		ug/L	1	135-98-8	1
p-Isopropyltoluene	52	5		ug/L	1	99-87-6	1
1,3-Dichlorobenzene	53	1		ug/L	1	541-73-1	1
1,4-Dichlorobenzene	53	1		ug/L	1	106-46-7	1
1,2-Dichlorobenzene	53	1		ug/L	1	95-50-1	1
1,2,3-Trimethylbenzene	54	1		ug/L	1	526-73-8	1
n-Butylbenzene	53	1		ug/L	1	104-51-8	1
Hexachloroethane	55	5		ug/L	1	67-72-1	1
1,2-Dibromo-3-chloropropane	53	5		ug/L	1	96-12-8	1
1,2,4-Trichlorobenzene	55	5		ug/L	1	120-82-1	1
1,2,3-Trichlorobenzene	55	5		ug/L	1	87-61-6	1
Naphthalene	56	5		ug/L	1	91-20-3	1
2-Methylnaphthalene	61	5		ug/L	1	91-57-6	1

1-Spiked at 50 ug/L

Lab Sample ID: S68769.03
Sample Tag: MW-22-154_112024 MSD
Collected Date/Time: 11/20/2024 10:05
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/25/24 12:10	NDK	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/22/24 13:14, Analyst: ACK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	51	10		ug/L	1	60-29-7	1
Acetone	50	50		ug/L	1	67-64-1	1
Methyl iodide	49	1		ug/L	1	74-88-4	1
Carbon disulfide	51	5		ug/L	1	75-15-0	1
tert-Methyl butyl ether (MTBE)	53	5		ug/L	1	1634-04-4	1
Acrylonitrile	54	2		ug/L	1	107-13-1	1
2-Butanone (MEK)	51	25		ug/L	1	78-93-3	1
Dichlorodifluoromethane	49	5		ug/L	1	75-71-8	1
Chloromethane	52	5		ug/L	1	74-87-3	1
Vinyl chloride	51	1		ug/L	1	75-01-4	1
Bromomethane	62	5		ug/L	1	74-83-9	1
Chloroethane	49	5		ug/L	1	75-00-3	1
Trichlorofluoromethane	49	1		ug/L	1	75-69-4	1
1,1-Dichloroethene	51	1		ug/L	1	75-35-4	1
Methylene chloride	51	5		ug/L	1	75-09-2	1
trans-1,2-Dichloroethene	53	1		ug/L	1	156-60-5	1
1,1-Dichloroethane	52	1		ug/L	1	75-34-3	1
cis-1,2-Dichloroethene	55	1		ug/L	1	156-59-2	1
Tetrahydrofuran	Not detected	90		ug/L	1	109-99-9	1
Chloroform	53	1		ug/L	1	67-66-3	1
Bromochloromethane	51	1		ug/L	1	74-97-5	1
1,1,1-Trichloroethane	51	1		ug/L	1	71-55-6	1
4-Methyl-2-pentanone (MIBK)	58	50		ug/L	1	108-10-1	1
2-Hexanone	59	50		ug/L	1	591-78-6	1
Carbon tetrachloride	51	1		ug/L	1	56-23-5	1
Benzene	52	1		ug/L	1	71-43-2	1
1,2-Dichloroethane	52	1		ug/L	1	107-06-2	1
Trichloroethene	52	1		ug/L	1	79-01-6	1
1,2-Dichloropropane	52	1		ug/L	1	78-87-5	1
Bromodichloromethane	53	1		ug/L	1	75-27-4	1
Dibromomethane	52	5		ug/L	1	74-95-3	1
cis-1,3-Dichloropropene	52	1		ug/L	1	10061-01-5	1
Toluene	52	1		ug/L	1	108-88-3	1
trans-1,3-Dichloropropene	53	1		ug/L	1	10061-02-6	1
1,1,2-Trichloroethane	53	1		ug/L	1	79-00-5	1
Tetrachloroethene	51	1		ug/L	1	127-18-4	1

1-Spiked at 50 ug/L

Lab Sample ID: S68769.03 (continued)
Sample Tag: MW-22-154_112024 MSD

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/22/24 13:14, Analyst: ACK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
trans-1,4-Dichloro-2-butene	58	1		ug/L	1	110-57-6	1
Dibromochloromethane	51	5		ug/L	1	124-48-1	1
1,2-Dibromoethane	52	1		ug/L	1	106-93-4	1
Chlorobenzene	52	1		ug/L	1	108-90-7	1
1,1,1,2-Tetrachloroethane	51	1		ug/L	1	630-20-6	1
Ethylbenzene	53	1		ug/L	1	100-41-4	1
p,m-Xylene	105	2		ug/L	1		1
o-Xylene	53	1		ug/L	1	95-47-6	1
Styrene	53	1		ug/L	1	100-42-5	1
Isopropylbenzene	53	5		ug/L	1	98-82-8	1
Bromoform	52	1		ug/L	1	75-25-2	1
1,1,2,2-Tetrachloroethane	53	1		ug/L	1	79-34-5	1
1,2,3-Trichloropropane	53	1		ug/L	1	96-18-4	1
n-Propylbenzene	53	1		ug/L	1	103-65-1	1
Bromobenzene	53	1		ug/L	1	108-86-1	1
1,3,5-Trimethylbenzene	53	1		ug/L	1	108-67-8	1
tert-Butylbenzene	53	1		ug/L	1	98-06-6	1
1,2,4-Trimethylbenzene	52	1		ug/L	1	95-63-6	1
sec-Butylbenzene	54	1		ug/L	1	135-98-8	1
p-Isopropyltoluene	54	5		ug/L	1	99-87-6	1
1,3-Dichlorobenzene	55	1		ug/L	1	541-73-1	1
1,4-Dichlorobenzene	55	1		ug/L	1	106-46-7	1
1,2-Dichlorobenzene	55	1		ug/L	1	95-50-1	1
1,2,3-Trimethylbenzene	56	1		ug/L	1	526-73-8	1
n-Butylbenzene	55	1		ug/L	1	104-51-8	1
Hexachloroethane	57	5		ug/L	1	67-72-1	1
1,2-Dibromo-3-chloropropane	56	5		ug/L	1	96-12-8	1
1,2,4-Trichlorobenzene	57	5		ug/L	1	120-82-1	1
1,2,3-Trichlorobenzene	57	5		ug/L	1	87-61-6	1
Naphthalene	58	5		ug/L	1	91-20-3	1
2-Methylnaphthalene	62	5		ug/L	1	91-57-6	1

1-Spiked at 50 ug/L

Lab Sample ID: S68769.04
Sample Tag: MW-22-152_112024
Collected Date/Time: 11/20/2024 11:30
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/22/24 10:15	NDK	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/21/24 17:04, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	

Lab Sample ID: S68769.04 (continued)
Sample Tag: MW-22-152_112024

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/21/24 17:04, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Lab Sample ID: S68769.05
Sample Tag: MW-04-05(6)_112024
Collected Date/Time: 11/20/2024 13:30
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/22/24 10:15	NDK	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/21/24 17:28, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	

Lab Sample ID: S68769.05 (continued)
Sample Tag: MW-04-05(6)_112024

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/21/24 17:28, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Lab Sample ID: S68769.06
Sample Tag: Dup-05_112024
Collected Date/Time: 11/20/2024 00:01
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/22/24 10:15	NDK	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/21/24 17:52, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	

Lab Sample ID: S68769.06 (continued)
Sample Tag: Dup-05_112024

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/21/24 17:52, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Lab Sample ID: S68769.07
Sample Tag: Dup-09_112024
Collected Date/Time: 11/20/2024 00:01
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/22/24 10:15	NDK	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/21/24 18:16, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	

Lab Sample ID: S68769.07 (continued)
Sample Tag: Dup-09_112024

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/21/24 18:16, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Quality Control Report

Report ID: S68769.01(01)+QC01
Generated on 11/25/2024

Report to

Attention: Kaitlyn Hunt
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 C:947-777-5215 FAX:

Report Produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S68769.01-S68769.07
Project: 30214036.0470A / RACER Lansing GWS
Submitted Date/Time: 11/20/2024 14:50
Sampled by: Unknown
P.O. #: US3460020275

QC Report Sections

Cover Page (Page 20)
Analysis Summary (Pages 21-27)
Prep Batch Summary (Page 28)
Surrogates per Lab Sample (Pages 29-33)
Surrogates per QC Sample (Pages 34-35)
Internal Standards per Lab Sample (Pages 36-40)
Internal Standards per QC Sample (Pages 41-42)
Batch QC Results (Pages 43-55)

Report Flag Descriptions

*: QC result is outside of indicated control limits
W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.

Barbara Ball
Quality Assurance Manager

Lab Sample ID: S68769.01
Sample Tag: MW-22-154_112024
Collected Date/Time: 11/20/2024 10:05
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	11/22/24 17:07	241122A11	VF241122W2	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S68769.02

Sample Tag: MW-22-154_112024 MS

Collected Date/Time: 11/20/2024 10:05

Matrix: Groundwater

COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	11/22/24 12:51	241122A11	VF241122W2	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S68769.03

Sample Tag: MW-22-154_112024 MSD

Collected Date/Time: 11/20/2024 10:05

Matrix: Groundwater

COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	11/22/24 13:14	241122A11	VF241122W2	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S68769.04
Sample Tag: MW-22-152_112024
Collected Date/Time: 11/20/2024 11:30
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	11/21/24 17:04	241121A7	VF241121W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S68769.05
Sample Tag: MW-04-05(6)_112024
Collected Date/Time: 11/20/2024 13:30
Matrix: Groundwater
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	11/21/24 17:28	241121A7	VF241121W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S68769.06

Sample Tag: Dup-05_112024

Collected Date/Time: 11/20/2024 00:01

Matrix: Groundwater

COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	11/21/24 17:52	241121A7	VF241121W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S68769.07

Sample Tag: Dup-09_112024

Collected Date/Time: 11/20/2024 00:01

Matrix: Groundwater

COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	11/21/24 18:16	241121A7	VF241121W1	Yes	BLK/LCS/LCSD

QC Report - Prep Batch Summary

Organics - Volatiles, Prep Batch ID: VF241121W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S68769.04	Volatile Organics - DEQ List	SW5030C/8260C	11/21/24 17:04	241121A7
S68769.05	Volatile Organics - DEQ List	SW5030C/8260C	11/21/24 17:28	241121A7
S68769.06	Volatile Organics - DEQ List	SW5030C/8260C	11/21/24 17:52	241121A7
S68769.07	Volatile Organics - DEQ List	SW5030C/8260C	11/21/24 18:16	241121A7

Organics - Volatiles, Prep Batch ID: VF241122W2

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S68769.01	Volatile Organics - DEQ List	SW5030C/8260C	11/22/24 17:07	241122A11
S68769.02	Volatile Organics - DEQ List	SW5030C/8260C	11/22/24 12:51	241122A11
S68769.03	Volatile Organics - DEQ List	SW5030C/8260C	11/22/24 13:14	241122A11

QC Report - Surrogates per Lab Sample

Lab Sample ID: S68769.01

Sample Tag: MW-22-154_112024

Collected Date/Time: 11/20/2024 10:05

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 241122A11, Run Date: 11/22/2024 17:07, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**99.2**	80.0	124.0
1,2-Dichloroethane-D4		**101.3**	72.0	125.0
Toluene-D8		**100.5**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S68769.04

Sample Tag: MW-22-152_112024

Collected Date/Time: 11/20/2024 11:30

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 241121A7, Run Date: 11/21/2024 17:04, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**101.0**	80.0	124.0
1,2-Dichloroethane-D4		**100.9**	72.0	125.0
Toluene-D8		**96.4**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S68769.05

Sample Tag: MW-04-05(6)_112024

Collected Date/Time: 11/20/2024 13:30

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 241121A7, Run Date: 11/21/2024 17:28, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**99.8**	80.0	124.0
1,2-Dichloroethane-D4		**99.4**	72.0	125.0
Toluene-D8		**96.1**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S68769.06

Sample Tag: Dup-05_112024

Collected Date/Time: 11/20/2024 00:01

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 241121A7, Run Date: 11/21/2024 17:52, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**100.4**	80.0	124.0
1,2-Dichloroethane-D4		**99.3**	72.0	125.0
Toluene-D8		**96.2**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S68769.07

Sample Tag: Dup-09_112024

Collected Date/Time: 11/20/2024 00:01

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 241121A7, Run Date: 11/21/2024 18:16, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**99.8**	80.0	124.0
1,2-Dichloroethane-D4		**99.3**	72.0	125.0
Toluene-D8		**96.8**	89.0	112.0

Organics - Volatiles, Prep Batch ID: VF241121W1

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 241121A7.BLKW21A

Run in Batch: 241121A7, Run Date: 11/21/2024 14:43, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**99.4**	80.0	124.0
1,2-Dichloroethane-D4		**99.5**	72.0	125.0
Toluene-D8		**96.0**	89.0	112.0

Laboratory Control Sample (LCS)

Lab Sample ID: 241121A7.LCSW21A

Run in Batch: 241121A7, Run Date: 11/21/2024 13:08, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**99.4**	80.0	124.0
1,2-Dichloroethane-D4		**93.0**	72.0	125.0
Toluene-D8		**96.6**	89.0	112.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241121A7.LCSDW21A, Parent Sample ID: 241121A7.LCSW21A

Run in Batch: 241121A7, Run Date: 11/21/2024 13:32, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**97.7**	80.0	124.0
1,2-Dichloroethane-D4		**91.8**	72.0	125.0
Toluene-D8		**96.5**	89.0	112.0

Organics - Volatiles, Prep Batch ID: VF241122W2

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 241122A11.BLKW22A

Run in Batch: 241122A11, Run Date: 11/22/2024 14:24, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**97.9**	80.0	124.0
1,2-Dichloroethane-D4		**101.5**	72.0	125.0
Toluene-D8		**99.6**	89.0	112.0

Laboratory Control Sample (LCS)

Lab Sample ID: 241122A11.LCSW22A

Run in Batch: 241122A11, Run Date: 11/22/2024 12:04, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**98.7**	80.0	124.0
1,2-Dichloroethane-D4		**92.6**	72.0	125.0
Toluene-D8		**99.1**	89.0	112.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241122A11.LCSDW22A, Parent Sample ID: 241122A11.LCSW22A

Run in Batch: 241122A11, Run Date: 11/22/2024 12:27, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**99.2**	80.0	124.0
1,2-Dichloroethane-D4		**98.3**	72.0	125.0
Toluene-D8		**99.1**	89.0	112.0

Matrix Spike (MS)

Lab Sample ID: 241122A11.6876902M, Parent Sample ID: S68769.01

Run in Batch: 241122A11, Run Date: 11/22/2024 12:51, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**99.8**	80.0	124.0
1,2-Dichloroethane-D4		**102.8**	72.0	125.0
Toluene-D8		**100.3**	89.0	112.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 241122A11.6876903N, Parent Sample ID: 241122A11.6876902M

Run in Batch: 241122A11, Run Date: 11/22/2024 13:14, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**97.6**	80.0	124.0
1,2-Dichloroethane-D4		**96.1**	72.0	125.0
Toluene-D8		**99.6**	89.0	112.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S68769.01

Sample Tag: MW-22-154_112024

Collected Date/Time: 11/20/2024 10:05

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 241122A11, Run Date: 11/22/2024 17:07, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**94.4**	50.0	200.0
1,4-Difluorobenzene		**94.5**	50.0	200.0
Chlorobenzene-D5		**95.6**	50.0	200.0
1,4-Dichlorobenzene-D4		**93.9**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S68769.04

Sample Tag: MW-22-152_112024

Collected Date/Time: 11/20/2024 11:30

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 241121A7, Run Date: 11/21/2024 17:04, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**95.2**	50.0	200.0
1,4-Difluorobenzene		**100.4**	50.0	200.0
Chlorobenzene-D5		**99.8**	50.0	200.0
1,4-Dichlorobenzene-D4		**100.8**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S68769.05

Sample Tag: MW-04-05(6)_112024

Collected Date/Time: 11/20/2024 13:30

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 241121A7, Run Date: 11/21/2024 17:28, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**95.3**	50.0	200.0
1,4-Difluorobenzene		**99.7**	50.0	200.0
Chlorobenzene-D5		**98.5**	50.0	200.0
1,4-Dichlorobenzene-D4		**98.8**	50.0	200.0

Lab Sample ID: S68769.06

Sample Tag: Dup-05_112024

Collected Date/Time: 11/20/2024 00:01

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 241121A7, Run Date: 11/21/2024 17:52, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**95.8**	50.0	200.0
1,4-Difluorobenzene		**99.9**	50.0	200.0
Chlorobenzene-D5		**98.1**	50.0	200.0
1,4-Dichlorobenzene-D4		**99.0**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S68769.07

Sample Tag: Dup-09_112024

Collected Date/Time: 11/20/2024 00:01

Matrix: Groundwater

COC Reference:

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 241121A7, Run Date: 11/21/2024 18:16, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**95.4**	50.0	200.0
1,4-Difluorobenzene		**98.5**	50.0	200.0
Chlorobenzene-D5		**98.5**	50.0	200.0
1,4-Dichlorobenzene-D4		**98.4**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VF241121W1

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 241121A7.BLKW21A

Run in Batch: 241121A7, Run Date: 11/21/2024 14:43, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**95.6**	50.0	200.0
1,4-Difluorobenzene		**99.5**	50.0	200.0
Chlorobenzene-D5		**99.3**	50.0	200.0
1,4-Dichlorobenzene-D4		**100.0**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 241121A7.LCSW21A

Run in Batch: 241121A7, Run Date: 11/21/2024 13:08, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**98.9**	50.0	200.0
1,4-Difluorobenzene		**99.2**	50.0	200.0
Chlorobenzene-D5		**101.5**	50.0	200.0
1,4-Dichlorobenzene-D4		**100.4**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241121A7.LCSDW21A, Parent Sample ID: 241121A7.LCSW21A

Run in Batch: 241121A7, Run Date: 11/21/2024 13:32, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**96.3**	50.0	200.0
1,4-Difluorobenzene		**96.7**	50.0	200.0
Chlorobenzene-D5		**99.5**	50.0	200.0
1,4-Dichlorobenzene-D4		**96.6**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VF241122W2

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 241122A11.BLKW22A

Run in Batch: 241122A11, Run Date: 11/22/2024 14:24, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**98.9**	50.0	200.0
1,4-Difluorobenzene		**99.9**	50.0	200.0
Chlorobenzene-D5		**100.0**	50.0	200.0
1,4-Dichlorobenzene-D4		**97.0**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 241122A11.LCSW22A

Run in Batch: 241122A11, Run Date: 11/22/2024 12:04, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**99.4**	50.0	200.0
1,4-Difluorobenzene		**99.6**	50.0	200.0
Chlorobenzene-D5		**98.5**	50.0	200.0
1,4-Dichlorobenzene-D4		**98.2**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241122A11.LCSDW22A, Parent Sample ID: 241122A11.LCSW22A

Run in Batch: 241122A11, Run Date: 11/22/2024 12:27, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**99.5**	50.0	200.0
1,4-Difluorobenzene		**100.6**	50.0	200.0
Chlorobenzene-D5		**101.0**	50.0	200.0
1,4-Dichlorobenzene-D4		**101.2**	50.0	200.0

Matrix Spike (MS)

Lab Sample ID: 241122A11.6876902M, Parent Sample ID: S68769.01

Run in Batch: 241122A11, Run Date: 11/22/2024 12:51, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**96.8**	50.0	200.0
1,4-Difluorobenzene		**99.0**	50.0	200.0
Chlorobenzene-D5		**101.6**	50.0	200.0
1,4-Dichlorobenzene-D4		**103.3**	50.0	200.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 241122A11.6876903N, Parent Sample ID: 241122A11.6876902M

Run in Batch: 241122A11, Run Date: 11/22/2024 13:14, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**96.0**	50.0	200.0
1,4-Difluorobenzene		**96.5**	50.0	200.0
Chlorobenzene-D5		**97.3**	50.0	200.0
1,4-Dichlorobenzene-D4		**95.9**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VF241121W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 241121A7.BLKW21A

Run in Batch: 241121A7, Run Date: 11/21/2024 14:43, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Diethyl ether		ND	1.00	ug/l
Acetone		ND	10.00	ug/l
Methyl iodide		ND	1.00	ug/l
Carbon disulfide		ND	1.00	ug/l
tert-Methyl butyl ether (MTBE)		ND	1.00	ug/l
Acrylonitrile		ND	1.00	ug/l
2-Butanone (MEK)		ND	10.00	ug/l
Dichlorodifluoromethane		ND	1.00	ug/l
Chloromethane		ND	1.00	ug/l
Vinyl chloride		ND	1.00	ug/l
Bromomethane		ND	1.00	ug/l
Chloroethane		ND	1.00	ug/l
Trichlorofluoromethane		ND	1.00	ug/l
1,1-Dichloroethene		ND	1.00	ug/l
Methylene chloride		ND	1.00	ug/l
trans-1,2-Dichloroethene		ND	1.00	ug/l
1,1-Dichloroethane		ND	1.00	ug/l
cis-1,2-Dichloroethene		ND	1.00	ug/l
Tetrahydrofuran		ND	10.00	ug/l
Chloroform		ND	1.00	ug/l
Bromochloromethane		ND	1.00	ug/l
1,1,1-Trichloroethane		ND	1.00	ug/l
4-Methyl-2-pentanone (MIBK)		ND	10.00	ug/l
2-Hexanone		ND	10.00	ug/l
Carbon tetrachloride		ND	1.00	ug/l
Benzene		ND	1.00	ug/l
1,2-Dichloroethane		ND	1.00	ug/l
Trichloroethene		ND	1.00	ug/l
1,2-Dichloropropane		ND	1.00	ug/l
Bromodichloromethane		ND	1.00	ug/l
Dibromomethane		ND	1.00	ug/l
cis-1,3-Dichloropropene		ND	1.00	ug/l
Toluene		ND	1.00	ug/l
trans-1,3-Dichloropropene		ND	1.00	ug/l
1,1,2-Trichloroethane		ND	1.00	ug/l
Tetrachloroethene		ND	1.00	ug/l
trans-1,4-Dichloro-2-butene		ND	1.00	ug/l
Dibromochloromethane		ND	1.00	ug/l
1,2-Dibromoethane		ND	1.00	ug/l
Chlorobenzene		ND	1.00	ug/l
1,1,1,2-Tetrachloroethane		ND	1.00	ug/l
Ethylbenzene		ND	1.00	ug/l
p,m-Xylene		ND	2.00	ug/l
o-Xylene		ND	1.00	ug/l
Styrene		ND	1.00	ug/l
Isopropylbenzene		ND	1.00	ug/l

Organics - Volatiles, Prep Batch ID: VF241121W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK) (continued)

Lab Sample ID: 241121A7.BLKW21A

Run in Batch: 241121A7, Run Date: 11/21/2024 14:43, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Bromoform		ND	1.00	ug/l
1,1,2,2-Tetrachloroethane		ND	1.00	ug/l
1,2,3-Trichloropropane		ND	1.00	ug/l
n-Propylbenzene		ND	1.00	ug/l
Bromobenzene		ND	1.00	ug/l
1,3,5-Trimethylbenzene		ND	1.00	ug/l
tert-Butylbenzene		ND	1.00	ug/l
1,2,4-Trimethylbenzene		ND	1.00	ug/l
sec-Butylbenzene		ND	1.00	ug/l
p-Isopropyltoluene		ND	1.00	ug/l
1,3-Dichlorobenzene		ND	1.00	ug/l
1,4-Dichlorobenzene		ND	1.00	ug/l
1,2-Dichlorobenzene		ND	1.00	ug/l
1,2,3-Trimethylbenzene		ND	1.00	ug/l
n-Butylbenzene		ND	1.00	ug/l
Hexachloroethane		ND	1.00	ug/l
1,2-Dibromo-3-chloropropane		ND	1.00	ug/l
1,2,4-Trichlorobenzene		ND	1.00	ug/l
1,2,3-Trichlorobenzene		ND	1.00	ug/l
Naphthalene		ND	1.00	ug/l
2-Methylnaphthalene		ND	1.00	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 241121A7.LCSW21A

Run in Batch: 241121A7, Run Date: 11/21/2024 13:08, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Diethyl ether		109.0	67.4	121.2
Acetone		148.9	29.9	161.5
Methyl iodide		107.2	68.8	116.4
Carbon disulfide		108.4	63.8	137.4
tert-Methyl butyl ether (MTBE)		106.3	73.2	122.4
Acrylonitrile		120.0	69.9	128.9
2-Butanone (MEK)		121.8	44.0	134.4
Dichlorodifluoromethane		94.0	10.0	222.8
Chloromethane		97.4	23.8	166.5
Vinyl chloride		92.8	43.5	149.1
Bromomethane		93.5	56.8	151.3
Chloroethane		95.5	53.4	149.4
Trichlorofluoromethane		98.1	59.7	151.8
1,1-Dichloroethene		107.3	69.6	139.4
Methylene chloride		101.5	73.3	121.1
trans-1,2-Dichloroethene		98.3	73.6	129.3
1,1-Dichloroethane		101.8	71.5	126.2
cis-1,2-Dichloroethene		100.7	76.6	122.1
Tetrahydrofuran		108.1	59.0	117.9
Chloroform		102.9	78.4	124.0

Organics - Volatiles, Prep Batch ID: VF241121W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 241121A7.LCSW21A

Run in Batch: 241121A7, Run Date: 11/21/2024 13:08, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Bromochloromethane		103.3	78.2	120.8
1,1,1-Trichloroethane		102.9	79.4	130.9
4-Methyl-2-pentanone (MIBK)		105.7	71.6	125.2
2-Hexanone		110.6	55.4	136.9
Carbon tetrachloride		99.8	72.6	133.0
Benzene		100.2	79.9	124.9
1,2-Dichloroethane		97.9	76.0	126.3
Trichloroethene		97.3	79.7	124.2
1,2-Dichloropropane		100.9	78.6	126.4
Bromodichloromethane		106.2	80.4	128.2
Dibromomethane		103.9	76.9	122.1
cis-1,3-Dichloropropene		101.6	79.8	129.9
Toluene		101.1	79.8	124.5
trans-1,3-Dichloropropene		102.8	74.0	131.3
1,1,2-Trichloroethane		104.1	78.7	123.1
Tetrachloroethene		99.4	74.5	124.5
trans-1,4-Dichloro-2-butene		93.2	68.6	135.4
Dibromochloromethane		107.9	74.6	127.2
1,2-Dibromoethane		104.1	70.3	133.7
Chlorobenzene		98.8	79.2	122.7
1,1,1,2-Tetrachloroethane		102.9	80.3	128.2
Ethylbenzene		99.1	79.5	129.1
p,m-Xylene		98.9	79.4	132.2
o-Xylene		99.3	80.2	131.0
Styrene		100.1	69.5	126.7
Isopropylbenzene		97.8	74.4	121.5
Bromoform		112.3	69.4	128.0
1,1,2,2-Tetrachloroethane		104.3	79.8	126.3
1,2,3-Trichloropropane		108.2	78.3	138.8
n-Propylbenzene		96.4	82.0	130.7
Bromobenzene		100.6	78.7	124.6
1,3,5-Trimethylbenzene		97.1	81.3	128.9
tert-Butylbenzene		94.0	80.7	128.9
1,2,4-Trimethylbenzene		98.6	81.4	130.8
sec-Butylbenzene		91.0	77.4	129.8
p-Isopropyltoluene		91.0	79.8	137.5
1,3-Dichlorobenzene		97.4	77.0	131.3
1,4-Dichlorobenzene		94.9	20.7	137.7
1,2-Dichlorobenzene		100.0	10.0	166.2
1,2,3-Trimethylbenzene		97.2	76.3	124.2
n-Butylbenzene		87.0	80.0	133.3
Hexachloroethane		95.0	23.8	138.1
1,2-Dibromo-3-chloropropane		121.9	21.2	189.4
1,2,4-Trichlorobenzene		97.5	27.4	143.4
1,2,3-Trichlorobenzene		99.1	75.4	131.4
Naphthalene		109.1	32.9	135.8

Organics - Volatiles, Prep Batch ID: VF241121W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 241121A7.LCSW21A

Run in Batch: 241121A7, Run Date: 11/21/2024 13:08, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
2-Methylnaphthalene		113.2	25.5	165.5

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241121A7.LCSDW21A, Parent Sample ID: 241121A7.LCSW21A

Run in Batch: 241121A7, Run Date: 11/21/2024 13:32, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Diethyl ether		111.4	67.4	121.2	2.2	30.0
Acetone		147.2	29.9	161.5	1.2	30.0
Methyl iodide		104.2	68.8	116.4	2.9	30.0
Carbon disulfide		104.9	63.8	137.4	3.3	30.0
tert-Methyl butyl ether (MTBE)		106.5	73.2	122.4	0.2	30.0
Acrylonitrile		120.4	69.9	128.9	0.4	30.0
2-Butanone (MEK)		126.5	44.0	134.4	3.8	30.0
Dichlorodifluoromethane		92.8	10.0	222.8	1.3	30.0
Chloromethane		96.7	23.8	166.5	0.8	30.0
Vinyl chloride		91.7	43.5	149.1	1.1	30.0
Bromomethane		93.5	56.8	151.3	0.0	30.0
Chloroethane		93.9	53.4	149.4	1.7	30.0
Trichlorofluoromethane		96.6	59.7	151.8	1.5	30.0
1,1-Dichloroethene		105.2	69.6	139.4	1.9	30.0
Methylene chloride		100.1	73.3	121.1	1.3	30.0
trans-1,2-Dichloroethene		96.7	73.6	129.3	1.7	30.0
1,1-Dichloroethane		100.7	71.5	126.2	1.1	30.0
cis-1,2-Dichloroethene		99.7	76.6	122.1	1.0	30.0
Tetrahydrofuran		111.5	59.0	117.9	3.1	30.0
Chloroform		102.3	78.4	124.0	0.6	30.0
Bromochloromethane		103.4	78.2	120.8	0.1	30.0
1,1,1-Trichloroethane		101.1	79.4	130.9	1.8	30.0
4-Methyl-2-pentanone (MIBK)		109.9	71.6	125.2	3.9	30.0
2-Hexanone		112.4	55.4	136.9	1.6	30.0
Carbon tetrachloride		96.7	72.6	133.0	3.2	30.0
Benzene		99.9	79.9	124.9	0.3	30.0
1,2-Dichloroethane		99.1	76.0	126.3	1.3	30.0
Trichloroethene		97.2	79.7	124.2	0.1	30.0
1,2-Dichloropropane		100.1	78.6	126.4	0.7	30.0
Bromodichloromethane		106.2	80.4	128.2	0.1	30.0
Dibromomethane		105.4	76.9	122.1	1.5	30.0
cis-1,3-Dichloropropene		101.5	79.8	129.9	0.0	30.0
Toluene		101.4	79.8	124.5	0.2	30.0
trans-1,3-Dichloropropene		102.8	74.0	131.3	0.1	30.0
1,1,2-Trichloroethane		105.1	78.7	123.1	1.0	30.0
Tetrachloroethene		99.4	74.5	124.5	0.0	30.0
trans-1,4-Dichloro-2-butene		84.4	68.6	135.4	9.9	30.0
Dibromochloromethane		107.6	74.6	127.2	0.3	30.0
1,2-Dibromoethane		104.8	70.3	133.7	0.7	30.0
Chlorobenzene		97.6	79.2	122.7	1.2	30.0

Organics - Volatiles, Prep Batch ID: VF241121W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: 241121A7.LCSDW21A, Parent Sample ID: 241121A7.LCSW21A

Run in Batch: 241121A7, Run Date: 11/21/2024 13:32, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,1,1,2-Tetrachloroethane		101.0	80.3	128.2	1.9	30.0
Ethylbenzene		97.1	79.5	129.1	2.0	30.0
p,m-Xylene		98.0	79.4	132.2	1.0	30.0
o-Xylene		97.4	80.2	131.0	1.9	30.0
Styrene		98.2	69.5	126.7	2.0	30.0
Isopropylbenzene		95.7	74.4	121.5	2.2	30.0
Bromoform		114.0	69.4	128.0	1.5	30.0
1,1,2,2-Tetrachloroethane		105.2	79.8	126.3	0.9	30.0
1,2,3-Trichloropropane		109.6	78.3	138.8	1.3	30.0
n-Propylbenzene		94.1	82.0	130.7	2.4	30.0
Bromobenzene		99.7	78.7	124.6	0.9	30.0
1,3,5-Trimethylbenzene		95.2	81.3	128.9	1.9	30.0
tert-Butylbenzene		92.3	80.7	128.9	1.8	30.0
1,2,4-Trimethylbenzene		96.5	81.4	130.8	2.2	30.0
sec-Butylbenzene		91.3	77.4	129.8	0.3	30.0
p-Isopropyltoluene		91.1	79.8	137.5	0.2	30.0
1,3-Dichlorobenzene		97.8	77.0	131.3	0.3	30.0
1,4-Dichlorobenzene		95.9	20.7	137.7	1.0	30.0
1,2-Dichlorobenzene		101.5	10.0	166.2	1.5	30.0
1,2,3-Trimethylbenzene		97.7	76.3	124.2	0.5	30.0
n-Butylbenzene		87.3	80.0	133.3	0.3	30.0
Hexachloroethane		95.7	23.8	138.1	0.7	30.0
1,2-Dibromo-3-chloropropane		126.0	21.2	189.4	3.3	30.0
1,2,4-Trichlorobenzene		99.8	27.4	143.4	2.4	30.0
1,2,3-Trichlorobenzene		103.3	75.4	131.4	4.2	30.0
Naphthalene		112.3	32.9	135.8	2.9	30.0
2-Methylnaphthalene		124.0	25.5	165.5	9.0	30.0

Organics - Volatiles, Prep Batch ID: VF241122W2

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 241122A11.BLKW22A

Run in Batch: 241122A11, Run Date: 11/22/2024 14:24, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Diethyl ether		ND	1.00	ug/l
Acetone		ND	10.00	ug/l
Methyl iodide		ND	1.00	ug/l
Carbon disulfide		ND	1.00	ug/l
tert-Methyl butyl ether (MTBE)		ND	1.00	ug/l
Acrylonitrile		ND	1.00	ug/l
2-Butanone (MEK)		ND	10.00	ug/l
Dichlorodifluoromethane		ND	1.00	ug/l
Chloromethane		ND	1.00	ug/l
Vinyl chloride		ND	1.00	ug/l
Bromomethane		ND	1.00	ug/l
Chloroethane		ND	1.00	ug/l
Trichlorofluoromethane		ND	1.00	ug/l
1,1-Dichloroethene		ND	1.00	ug/l
Methylene chloride		ND	1.00	ug/l
trans-1,2-Dichloroethene		ND	1.00	ug/l
1,1-Dichloroethane		ND	1.00	ug/l
cis-1,2-Dichloroethene		ND	1.00	ug/l
Tetrahydrofuran		ND	10.00	ug/l
Chloroform		ND	1.00	ug/l
Bromochloromethane		ND	1.00	ug/l
1,1,1-Trichloroethane		ND	1.00	ug/l
4-Methyl-2-pentanone (MIBK)		ND	10.00	ug/l
2-Hexanone		ND	10.00	ug/l
Carbon tetrachloride		ND	1.00	ug/l
Benzene		ND	1.00	ug/l
1,2-Dichloroethane		ND	1.00	ug/l
Trichloroethene		ND	1.00	ug/l
1,2-Dichloropropane		ND	1.00	ug/l
Bromodichloromethane		ND	1.00	ug/l
Dibromomethane		ND	1.00	ug/l
cis-1,3-Dichloropropene		ND	1.00	ug/l
Toluene		ND	1.00	ug/l
trans-1,3-Dichloropropene		ND	1.00	ug/l
1,1,2-Trichloroethane		ND	1.00	ug/l
Tetrachloroethene		ND	1.00	ug/l
trans-1,4-Dichloro-2-butene		ND	1.00	ug/l
Dibromochloromethane		ND	1.00	ug/l
1,2-Dibromoethane		ND	1.00	ug/l
Chlorobenzene		ND	1.00	ug/l
1,1,1,2-Tetrachloroethane		ND	1.00	ug/l
Ethylbenzene		ND	1.00	ug/l
p,m-Xylene		ND	2.00	ug/l
o-Xylene		ND	1.00	ug/l
Styrene		ND	1.00	ug/l
Isopropylbenzene		ND	1.00	ug/l

Organics - Volatiles, Prep Batch ID: VF241122W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK) (continued)

Lab Sample ID: 241122A11.BLKW22A

Run in Batch: 241122A11, Run Date: 11/22/2024 14:24, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Bromoform		ND	1.00	ug/l
1,1,2,2-Tetrachloroethane		ND	1.00	ug/l
1,2,3-Trichloropropane		ND	1.00	ug/l
n-Propylbenzene		ND	1.00	ug/l
Bromobenzene		ND	1.00	ug/l
1,3,5-Trimethylbenzene		ND	1.00	ug/l
tert-Butylbenzene		ND	1.00	ug/l
1,2,4-Trimethylbenzene		ND	1.00	ug/l
sec-Butylbenzene		ND	1.00	ug/l
p-Isopropyltoluene		ND	1.00	ug/l
1,3-Dichlorobenzene		ND	1.00	ug/l
1,4-Dichlorobenzene		ND	1.00	ug/l
1,2-Dichlorobenzene		ND	1.00	ug/l
1,2,3-Trimethylbenzene		ND	1.00	ug/l
n-Butylbenzene		ND	1.00	ug/l
Hexachloroethane		ND	1.00	ug/l
1,2-Dibromo-3-chloropropane		ND	1.00	ug/l
1,2,4-Trichlorobenzene		ND	1.00	ug/l
1,2,3-Trichlorobenzene		ND	1.00	ug/l
Naphthalene		ND	1.00	ug/l
2-Methylnaphthalene		ND	1.00	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 241122A11.LCSW22A

Run in Batch: 241122A11, Run Date: 11/22/2024 12:04, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Diethyl ether		103.9	67.4	121.2
Acetone		100.6	29.9	161.5
Methyl iodide		104.0	68.8	116.4
Carbon disulfide		103.8	63.8	137.4
tert-Methyl butyl ether (MTBE)		105.5	73.2	122.4
Acrylonitrile		104.5	69.9	128.9
2-Butanone (MEK)		94.7	44.0	134.4
Dichlorodifluoromethane		100.1	10.0	222.8
Chloromethane		107.9	23.8	166.5
Vinyl chloride		103.0	43.5	149.1
Bromomethane		127.3	56.8	151.3
Chloroethane		98.5	53.4	149.4
Trichlorofluoromethane		97.5	59.7	151.8
1,1-Dichloroethene		101.0	69.6	139.4
Methylene chloride		102.7	73.3	121.1
trans-1,2-Dichloroethene		105.7	73.6	129.3
1,1-Dichloroethane		105.2	71.5	126.2
cis-1,2-Dichloroethene		105.9	76.6	122.1
Tetrahydrofuran		96.1	59.0	117.9
Chloroform		105.7	78.4	124.0

Organics - Volatiles, Prep Batch ID: VF241122W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 241122A11.LCSW22A

Run in Batch: 241122A11, Run Date: 11/22/2024 12:04, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Bromochloromethane		104.0	78.2	120.8
1,1,1-Trichloroethane		102.3	79.4	130.9
4-Methyl-2-pentanone (MIBK)		99.6	71.6	125.2
2-Hexanone		101.3	55.4	136.9
Carbon tetrachloride		101.2	72.6	133.0
Benzene		105.1	79.9	124.9
1,2-Dichloroethane		104.1	76.0	126.3
Trichloroethene		104.9	79.7	124.2
1,2-Dichloropropane		107.0	78.6	126.4
Bromodichloromethane		107.2	80.4	128.2
Dibromomethane		102.6	76.9	122.1
cis-1,3-Dichloropropene		106.6	79.8	129.9
Toluene		105.7	79.8	124.5
trans-1,3-Dichloropropene		107.2	74.0	131.3
1,1,2-Trichloroethane		106.2	78.7	123.1
Tetrachloroethene		102.7	74.5	124.5
trans-1,4-Dichloro-2-butene		117.7	68.6	135.4
Dibromochloromethane		105.5	74.6	127.2
1,2-Dibromoethane		105.9	70.3	133.7
Chlorobenzene		107.8	79.2	122.7
1,1,1,2-Tetrachloroethane		105.5	80.3	128.2
Ethylbenzene		109.1	79.5	129.1
p,m-Xylene		109.5	79.4	132.2
o-Xylene		110.4	80.2	131.0
Styrene		109.0	69.5	126.7
Isopropylbenzene		109.6	74.4	121.5
Bromoform		105.6	69.4	128.0
1,1,2,2-Tetrachloroethane		105.1	79.8	126.3
1,2,3-Trichloropropane		106.1	78.3	138.8
n-Propylbenzene		111.7	82.0	130.7
Bromobenzene		108.5	78.7	124.6
1,3,5-Trimethylbenzene		110.2	81.3	128.9
tert-Butylbenzene		110.5	80.7	128.9
1,2,4-Trimethylbenzene		109.8	81.4	130.8
sec-Butylbenzene		112.0	77.4	129.8
p-Isopropyltoluene		114.2	79.8	137.5
1,3-Dichlorobenzene		112.9	77.0	131.3
1,4-Dichlorobenzene		112.4	20.7	137.7
1,2-Dichlorobenzene		112.3	10.0	166.2
1,2,3-Trimethylbenzene		115.6	76.3	124.2
n-Butylbenzene		116.5	80.0	133.3
Hexachloroethane		118.0	23.8	138.1
1,2-Dibromo-3-chloropropane		106.6	21.2	189.4
1,2,4-Trichlorobenzene		114.7	27.4	143.4
1,2,3-Trichlorobenzene		113.0	75.4	131.4
Naphthalene		110.3	32.9	135.8

Organics - Volatiles, Prep Batch ID: VF241122W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 241122A11.LCSW22A

Run in Batch: 241122A11, Run Date: 11/22/2024 12:04, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
2-Methylnaphthalene		111.5	25.5	165.5

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241122A11.LCSDW22A, Parent Sample ID: 241122A11.LCSW22A

Run in Batch: 241122A11, Run Date: 11/22/2024 12:27, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Diethyl ether		102.7	67.4	121.2	1.1	30.0
Acetone		100.9	29.9	161.5	0.2	30.0
Methyl iodide		100.2	68.8	116.4	3.7	30.0
Carbon disulfide		98.5	63.8	137.4	5.2	30.0
tert-Methyl butyl ether (MTBE)		104.7	73.2	122.4	0.8	30.0
Acrylonitrile		106.0	69.9	128.9	1.4	30.0
2-Butanone (MEK)		99.7	44.0	134.4	5.2	30.0
Dichlorodifluoromethane		94.5	10.0	222.8	5.7	30.0
Chloromethane		100.7	23.8	166.5	6.9	30.0
Vinyl chloride		97.0	43.5	149.1	6.0	30.0
Bromomethane		124.6	56.8	151.3	2.1	30.0
Chloroethane		95.5	53.4	149.4	3.2	30.0
Trichlorofluoromethane		92.9	59.7	151.8	4.9	30.0
1,1-Dichloroethene		96.1	69.6	139.4	5.0	30.0
Methylene chloride		101.3	73.3	121.1	1.4	30.0
trans-1,2-Dichloroethene		102.2	73.6	129.3	3.4	30.0
1,1-Dichloroethane		101.8	71.5	126.2	3.3	30.0
cis-1,2-Dichloroethene		102.2	76.6	122.1	3.5	30.0
Tetrahydrofuran		101.1	59.0	117.9	5.1	30.0
Chloroform		103.4	78.4	124.0	2.1	30.0
Bromochloromethane		103.2	78.2	120.8	0.8	30.0
1,1,1-Trichloroethane		98.6	79.4	130.9	3.8	30.0
4-Methyl-2-pentanone (MIBK)		101.4	71.6	125.2	1.8	30.0
2-Hexanone		102.3	55.4	136.9	1.0	30.0
Carbon tetrachloride		97.8	72.6	133.0	3.4	30.0
Benzene		100.8	79.9	124.9	4.2	30.0
1,2-Dichloroethane		101.5	76.0	126.3	2.5	30.0
Trichloroethene		100.1	79.7	124.2	4.7	30.0
1,2-Dichloropropane		103.0	78.6	126.4	3.8	30.0
Bromodichloromethane		103.9	80.4	128.2	3.2	30.0
Dibromomethane		101.2	76.9	122.1	1.4	30.0
cis-1,3-Dichloropropene		103.9	79.8	129.9	2.6	30.0
Toluene		101.7	79.8	124.5	3.9	30.0
trans-1,3-Dichloropropene		104.9	74.0	131.3	2.2	30.0
1,1,2-Trichloroethane		103.5	78.7	123.1	2.5	30.0
Tetrachloroethene		96.7	74.5	124.5	6.0	30.0
trans-1,4-Dichloro-2-butene		114.6	68.6	135.4	2.7	30.0
Dibromochloromethane		102.3	74.6	127.2	3.1	30.0
1,2-Dibromoethane		102.1	70.3	133.7	3.6	30.0
Chlorobenzene		101.9	79.2	122.7	5.6	30.0

Organics - Volatiles, Prep Batch ID: VF241122W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: 241122A11.LCSDW22A, Parent Sample ID: 241122A11.LCSW22A

Run in Batch: 241122A11, Run Date: 11/22/2024 12:27, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,1,1,2-Tetrachloroethane		101.3	80.3	128.2	4.1	30.0
Ethylbenzene		102.8	79.5	129.1	6.0	30.0
p,m-Xylene		103.4	79.4	132.2	5.8	30.0
o-Xylene		104.5	80.2	131.0	5.5	30.0
Styrene		104.1	69.5	126.7	4.7	30.0
Isopropylbenzene		103.7	74.4	121.5	5.5	30.0
Bromoform		104.7	69.4	128.0	0.9	30.0
1,1,2,2-Tetrachloroethane		104.6	79.8	126.3	0.5	30.0
1,2,3-Trichloropropane		105.2	78.3	138.8	0.9	30.0
n-Propylbenzene		104.6	82.0	130.7	6.6	30.0
Bromobenzene		104.0	78.7	124.6	4.2	30.0
1,3,5-Trimethylbenzene		102.9	81.3	128.9	6.9	30.0
tert-Butylbenzene		104.0	80.7	128.9	6.1	30.0
1,2,4-Trimethylbenzene		104.4	81.4	130.8	5.0	30.0
sec-Butylbenzene		104.9	77.4	129.8	6.5	30.0
p-Isopropyltoluene		106.5	79.8	137.5	7.0	30.0
1,3-Dichlorobenzene		107.0	77.0	131.3	5.3	30.0
1,4-Dichlorobenzene		106.3	20.7	137.7	5.5	30.0
1,2-Dichlorobenzene		105.9	10.0	166.2	5.8	30.0
1,2,3-Trimethylbenzene		108.9	76.3	124.2	5.9	30.0
n-Butylbenzene		107.6	80.0	133.3	8.0	30.0
Hexachloroethane		110.3	23.8	138.1	6.8	30.0
1,2-Dibromo-3-chloropropane		105.8	21.2	189.4	0.7	30.0
1,2,4-Trichlorobenzene		109.6	27.4	143.4	4.5	30.0
1,2,3-Trichlorobenzene		109.0	75.4	131.4	3.6	30.0
Naphthalene		108.6	32.9	135.8	1.5	30.0
2-Methylnaphthalene		112.1	25.5	165.5	0.5	30.0

Matrix Spike (MS)

Lab Sample ID: 241122A11.6876902M, Parent Sample ID: S68769.01

Run in Batch: 241122A11, Run Date: 11/22/2024 12:51, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Diethyl ether		104.8	67.4	121.2
Acetone		98.8	29.9	161.5
Methyl iodide		98.9	68.8	116.4
Carbon disulfide		103.9	63.8	137.4
tert-Methyl butyl ether (MTBE)		109.2	73.2	122.4
Acrylonitrile		109.1	69.9	128.9
2-Butanone (MEK)		101.1	44.0	134.4
Dichlorodifluoromethane		100.6	10.0	222.8
Chloromethane		105.3	23.8	166.5
Vinyl chloride		102.4	43.5	149.1
Bromomethane		125.0	56.8	151.3
Chloroethane		98.8	53.4	149.4
Trichlorofluoromethane		101.9	59.7	151.8
1,1-Dichloroethene		102.6	69.6	139.4

Organics - Volatiles, Prep Batch ID: VF241122W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Matrix Spike (MS) (continued)

Lab Sample ID: 241122A11.6876902M, Parent Sample ID: S68769.01

Run in Batch: 241122A11, Run Date: 11/22/2024 12:51, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Methylene chloride		105.3	73.3	121.1
trans-1,2-Dichloroethene		106.9	73.6	129.3
1,1-Dichloroethane		105.6	71.5	126.2
cis-1,2-Dichloroethene		106.2	76.6	122.1
Tetrahydrofuran		103.1	59.0	117.9
Chloroform		106.9	78.4	124.0
Bromochloromethane		105.8	78.2	120.8
1,1,1-Trichloroethane		103.9	79.4	130.9
4-Methyl-2-pentanone (MIBK)		114.6	71.6	125.2
2-Hexanone		117.3	55.4	136.9
Carbon tetrachloride		101.9	72.6	133.0
Benzene		103.9	79.9	124.9
1,2-Dichloroethane		103.5	76.0	126.3
Trichloroethene		104.0	79.7	124.2
1,2-Dichloropropane		106.2	78.6	126.4
Bromodichloromethane		106.9	80.4	128.2
Dibromomethane		103.6	76.9	122.1
cis-1,3-Dichloropropene		106.6	79.8	129.9
Toluene		104.9	79.8	124.5
trans-1,3-Dichloropropene		108.4	74.0	131.3
1,1,2-Trichloroethane		106.8	78.7	123.1
Tetrachloroethene		101.8	74.5	124.5
trans-1,4-Dichloro-2-butene		117.2	68.6	135.4
Dibromochloromethane		102.2	74.6	127.2
1,2-Dibromoethane		103.4	70.3	133.7
Chlorobenzene		103.1	79.2	122.7
1,1,1,2-Tetrachloroethane		101.3	80.3	128.2
Ethylbenzene		104.0	79.5	129.1
p,m-Xylene		104.1	79.4	132.2
o-Xylene		104.7	80.2	131.0
Styrene		104.1	69.5	126.7
Isopropylbenzene		104.0	74.4	121.5
Bromoform		102.6	69.4	128.0
1,1,2,2-Tetrachloroethane		105.2	79.8	126.3
1,2,3-Trichloropropane		105.5	78.3	138.8
n-Propylbenzene		105.7	82.0	130.7
Bromobenzene		104.5	78.7	124.6
1,3,5-Trimethylbenzene		103.9	81.3	128.9
tert-Butylbenzene		104.8	80.7	128.9
1,2,4-Trimethylbenzene		104.3	81.4	130.8
sec-Butylbenzene		103.7	77.4	129.8
p-Isopropyltoluene		104.2	79.8	137.5
1,3-Dichlorobenzene		106.0	77.0	131.3
1,4-Dichlorobenzene		106.3	20.7	137.7
1,2-Dichlorobenzene		105.5	10.0	166.2
1,2,3-Trimethylbenzene		107.4	76.3	124.2

Organics - Volatiles, Prep Batch ID: VF241122W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Matrix Spike (MS) (continued)

Lab Sample ID: 241122A11.6876902M, Parent Sample ID: S68769.01

Run in Batch: 241122A11, Run Date: 11/22/2024 12:51, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
n-Butylbenzene		106.2	80.0	133.3
Hexachloroethane		109.4	23.8	138.1
1,2-Dibromo-3-chloropropane		106.9	21.2	189.4
1,2,4-Trichlorobenzene		109.8	27.4	143.4
1,2,3-Trichlorobenzene		109.6	75.4	131.4
Naphthalene		111.4	32.9	135.8
2-Methylnaphthalene		121.0	25.5	165.5

Matrix Spike Duplicate (MSD)

Lab Sample ID: 241122A11.6876903N, Parent Sample ID: 241122A11.6876902M

Run in Batch: 241122A11, Run Date: 11/22/2024 13:14, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Diethyl ether		103.0	67.4	121.2	1.7	30.0
Acetone		97.5	29.9	161.5	1.3	30.0
Methyl iodide		98.1	68.8	116.4	0.9	30.0
Carbon disulfide		101.8	63.8	137.4	2.0	30.0
tert-Methyl butyl ether (MTBE)		105.9	73.2	122.4	3.1	30.0
Acrylonitrile		107.2	69.9	128.9	1.7	30.0
2-Butanone (MEK)		100.0	44.0	134.4	1.0	30.0
Dichlorodifluoromethane		98.6	10.0	222.8	2.0	30.0
Chloromethane		103.5	23.8	166.5	1.7	30.0
Vinyl chloride		100.3	43.5	149.1	2.1	30.0
Bromomethane		123.0	56.8	151.3	1.6	30.0
Chloroethane		96.9	53.4	149.4	2.0	30.0
Trichlorofluoromethane		98.4	59.7	151.8	3.5	30.0
1,1-Dichloroethene		101.2	69.6	139.4	1.4	30.0
Methylene chloride		102.0	73.3	121.1	3.2	30.0
trans-1,2-Dichloroethene		104.9	73.6	129.3	1.8	30.0
1,1-Dichloroethane		102.5	71.5	126.2	3.0	30.0
cis-1,2-Dichloroethene		104.5	76.6	122.1	1.6	30.0
Tetrahydrofuran		102.3	59.0	117.9	0.8	30.0
Chloroform		105.5	78.4	124.0	1.3	30.0
Bromochloromethane		102.5	78.2	120.8	3.2	30.0
1,1,1-Trichloroethane		101.4	79.4	130.9	2.4	30.0
4-Methyl-2-pentanone (MIBK)		115.6	71.6	125.2	0.8	30.0
2-Hexanone		118.2	55.4	136.9	0.8	30.0
Carbon tetrachloride		102.8	72.6	133.0	0.9	30.0
Benzene		103.5	79.9	124.9	0.4	30.0
1,2-Dichloroethane		103.1	76.0	126.3	0.4	30.0
Trichloroethene		103.4	79.7	124.2	0.6	30.0
1,2-Dichloropropane		104.7	78.6	126.4	1.5	30.0
Bromodichloromethane		105.8	80.4	128.2	1.0	30.0
Dibromomethane		103.5	76.9	122.1	0.1	30.0
cis-1,3-Dichloropropene		104.9	79.8	129.9	1.6	30.0
Toluene		104.3	79.8	124.5	0.6	30.0
trans-1,3-Dichloropropene		106.9	74.0	131.3	1.4	30.0

Organics - Volatiles, Prep Batch ID: VF241122W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Matrix Spike Duplicate (MSD) (continued)

Lab Sample ID: 241122A11.6876903N, Parent Sample ID: 241122A11.6876902M

Run in Batch: 241122A11, Run Date: 11/22/2024 13:14, Prep Date: 11/22/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,1,2-Trichloroethane		105.8	78.7	123.1	1.0	30.0
Tetrachloroethene		101.2	74.5	124.5	0.5	30.0
trans-1,4-Dichloro-2-butene		116.0	68.6	135.4	1.0	30.0
Dibromochloromethane		102.8	74.6	127.2	0.6	30.0
1,2-Dibromoethane		103.4	70.3	133.7	0.0	30.0
Chlorobenzene		103.4	79.2	122.7	0.2	30.0
1,1,1,2-Tetrachloroethane		102.1	80.3	128.2	0.7	30.0
Ethylbenzene		105.6	79.5	129.1	1.5	30.0
p,m-Xylene		105.4	79.4	132.2	1.2	30.0
o-Xylene		106.1	80.2	131.0	1.3	30.0
Styrene		105.4	69.5	126.7	1.2	30.0
Isopropylbenzene		105.4	74.4	121.5	1.3	30.0
Bromoform		104.2	69.4	128.0	1.6	30.0
1,1,2,2-Tetrachloroethane		106.2	79.8	126.3	1.0	30.0
1,2,3-Trichloropropane		106.3	78.3	138.8	0.8	30.0
n-Propylbenzene		106.3	82.0	130.7	0.6	30.0
Bromobenzene		105.0	78.7	124.6	0.5	30.0
1,3,5-Trimethylbenzene		105.2	81.3	128.9	1.2	30.0
tert-Butylbenzene		106.1	80.7	128.9	1.2	30.0
1,2,4-Trimethylbenzene		104.8	81.4	130.8	0.4	30.0
sec-Butylbenzene		108.1	77.4	129.8	4.2	30.0
p-Isopropyltoluene		108.9	79.8	137.5	4.4	30.0
1,3-Dichlorobenzene		109.6	77.0	131.3	3.3	30.0
1,4-Dichlorobenzene		109.6	20.7	137.7	3.1	30.0
1,2-Dichlorobenzene		109.2	10.0	166.2	3.5	30.0
1,2,3-Trimethylbenzene		111.6	76.3	124.2	3.8	30.0
n-Butylbenzene		110.0	80.0	133.3	3.6	30.0
Hexachloroethane		114.2	23.8	138.1	4.3	30.0
1,2-Dibromo-3-chloropropane		112.2	21.2	189.4	4.8	30.0
1,2,4-Trichlorobenzene		113.8	27.4	143.4	3.5	30.0
1,2,3-Trichlorobenzene		113.3	75.4	131.4	3.3	30.0
Naphthalene		115.3	32.9	135.8	3.5	30.0
2-Methylnaphthalene		123.5	25.5	165.5	2.0	30.0

Merit Laboratories Login Checklist

Lab Set ID: S68769
Client: ARCADIS_NOVI (ARCADIS U.S., Inc.)
Project: 30214036.0470A / RACER Lansing GWS
Submitted: 11/20/2024 14:50 Login User: MAM

Attention: Kaitlyn Hunt
Address: Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	6.0 IR
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[ ] Yes	[X] No	[ ] N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	[X] Yes	[ ] No	[ ] N/A	Do sample have correct chemical preservation	
11.	[ ] Yes	[ ] No	[X] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[ ] Yes	[X] No	[ ] N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[ ] Yes	[X] No	[ ] N/A	Samples require laboratory filtration	
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[ ] No	[X] N/A	Do water VOC, TOX, DO or Alkalinity bottles contain	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Plant 6

Merit Laboratories, Inc.

2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # _____ OF _____

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Tiffany Linder, Kaitlyn Hunt
COMPANY: Arcadis
ADDRESS: 28550 Cabot Drive, STE 500
CITY: Novi | STATE: MI | ZIP CODE: 48377
PHONE NO.: 947-777-5215 | FAX NO.: | P.O. NO.:
E-MAIL ADDRESS: kaitlyn.hunt@arcadis.com | QUOTE NO.:

INVOICE TO

CONTACT NAME: ☒ SAME
COMPANY:
ADDRESS:
CITY: | STATE: | ZIP CODE:
PHONE NO.: | E-MAIL ADDRESS: tiffany.linder@arcadis.com

PROJECT NO./NAME: 30214036.0470A / RACER Lansing GWS
SAMPLER(S) - PLEASE PRINT/SIGN NAME:

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER _____

DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☒ EDD ☐ OTHER _____

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐ OHIO VAP ☐ Drinking Water ☐ DoD ☐ NPDES

Project Locations: ☐ Detroit ☐ New York ☐ Other _____

Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	1,4-Dioxane - 8260 SIMS	VOC - 8260 SIMS
68769.01/04	11/20/24	1005	MW-22-154_112024	GW	9	9								X
.04	11/20/24	1130	MW-22-152_112024	GW	3		3							X
.05	11/20/24	1330	MW-04-05(6)_112024	GW	3		3							X
.06	11/20/24	—	Dup-05_112024	GW	3		3							X
.07	11/20/24	—	Dup-09_112024	GW	3		3							X

RELINQUISHED BY: SIGNATURE/ORGANIZATION	Daniel Dietl/Arcadis ☑ Sampler	DATE 11/20/24	TIME 1450
RECEIVED BY: SIGNATURE/ORGANIZATION	Johanna Murray	DATE 11/20/24	TIME 1450
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

SEAL NO. | SEAL INTACT YES ☐ NO ☐ | INITIALS
SEAL NO. | SEAL INTACT YES ☐ NO ☐ | INITIALS

NOTES | TEMP. ON ARRIVAL 6.0

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

Analytical Laboratory Report

Report ID: S68773.01(01)+QC01
Generated on 11/25/2024

Report to

Attention: Kaitlyn Hunt
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 C:947-777-5215 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Addtional Contacts: Marina Samp, Tiffany Linder

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S68773.01
Project: RACER Lansing 30214036.0470B
Collected Date(s): 11/19/2024
Submitted Date/Time: 11/20/2024 14:50
Sampled by: Billy Cobern
P.O. #: US3460020275

Table of Contents

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Sample Summary (Page 5)
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Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Starred (*) analytes are not NY NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.
Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.
All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.
For a specific list of accredited analytes, please feel free to contact the laboratory or visit https://www.meritlabs.com/certifications.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
o	Associated EIS outside of control limits
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
q	Qualifier ion ratio outside of control limits
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
N/A	Not Applicable
SW8260B - SIM	SW 846 Method 8260B Revision 2 December 1996 SIMs

Sample Summary (1 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S68773.01	PW-14-03R_111924	Groundwater	11/19/24 09:30

Lab Sample ID: S68773.01
Sample Tag: PW-14-03R_111924
Collected Date/Time: 11/19/2024 09:30
Matrix: Groundwater
COC Reference: 171342

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/22/24 10:15	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/22/24 00:25, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	11	1		ug/L	1	123-91-1	

Quality Control Report

Report ID: S68773.01(01)+QC01
Generated on 11/22/2024

Report to

Attention: Kaitlyn Hunt
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 C:947-777-5215 FAX:

Report Produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S68773.01
Project: RACER Lansing 30214036.0470B
Submitted Date/Time: 11/20/2024 14:50
Sampled by: Billy Cobern
P.O. #: US3460020275

QC Report Sections

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Analysis Summary (Page 8)
Prep Batch Summary (Page 9)
Surrogates per QC Sample (Page 10)
Internal Standards per Lab Sample (Page 11)
Internal Standards per QC Sample (Page 12)
Batch QC Results (Page 13)

Report Flag Descriptions

*: QC result is outside of indicated control limits
W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.



Barbara Ball
Quality Assurance Manager

QC Report - Analysis Summary

Lab Sample ID: S68773.01
Sample Tag: PW-14-03R_111924
Collected Date/Time: 11/19/2024 09:30
Matrix: Groundwater
COC Reference: 171342

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	11/22/24 00:25	241121A9	VS241121W1	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Prep Batch Summary

Organics - Volatiles, Prep Batch ID: VS241121W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S68773.01	1,4-Dioxane	SW8260B - SIM	11/22/24 00:25	241121A9

Organics - Volatiles, Prep Batch ID: VS241121W1

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 241121A9.BLKW21A

Run in Batch: 241121A9, Run Date: 11/21/2024 19:22, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample (LCS)

Lab Sample ID: 241121A9.LCSW21A

Run in Batch: 241121A9, Run Date: 11/21/2024 17:15, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241121A9.LCSDW21A, Parent Sample ID: 241121A9.LCSW21A

Run in Batch: 241121A9, Run Date: 11/21/2024 17:40, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Matrix Spike (MS)

Lab Sample ID: 241121A9.6868908M, Parent Sample ID: S68689.07

Run in Batch: 241121A9, Run Date: 11/21/2024 18:06, Prep Date: 11/21/2024, Matrix: WW, Dilution: 5

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Matrix Spike Duplicate (MSD)

Lab Sample ID: 241121A9.6868909N, Parent Sample ID: 241121A9.6868908M

Run in Batch: 241121A9, Run Date: 11/21/2024 18:31, Prep Date: 11/21/2024, Matrix: WW, Dilution: 5

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S68773.01

Sample Tag: PW-14-03R_111924

Collected Date/Time: 11/19/2024 09:30

Matrix: Groundwater

COC Reference: 171342

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 241121A9, Run Date: 11/22/2024 00:25, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Dioxane-D8		**90.9**	50.0	200.0

QC Report - Internal Standards per QC Sample

Organics - Volatiles, Prep Batch ID: VS241121W1

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 241121A9.BLKW21A

Run in Batch: 241121A9, Run Date: 11/21/2024 19:22, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**89.9**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 241121A9.LCSW21A

Run in Batch: 241121A9, Run Date: 11/21/2024 17:15, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**99.7**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241121A9.LCSDW21A, Parent Sample ID: 241121A9.LCSW21A

Run in Batch: 241121A9, Run Date: 11/21/2024 17:40, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**99.3**	50.0	200.0

Matrix Spike (MS)

Lab Sample ID: 241121A9.6868908M, Parent Sample ID: S68689.07

Run in Batch: 241121A9, Run Date: 11/21/2024 18:06, Prep Date: 11/21/2024, Matrix: WW, Dilution: 5

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**91.7**	50.0	200.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 241121A9.6868909N, Parent Sample ID: 241121A9.6868908M

Run in Batch: 241121A9, Run Date: 11/21/2024 18:31, Prep Date: 11/21/2024, Matrix: WW, Dilution: 5

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		**90.4**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VS241121W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 241121A9.BLKW21A

Run in Batch: 241121A9, Run Date: 11/21/2024 19:22, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
1,4-Dioxane		ND	1.00	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 241121A9.LCSW21A

Run in Batch: 241121A9, Run Date: 11/21/2024 17:15, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		95.8	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 241121A9.LCSDW21A, Parent Sample ID: 241121A9.LCSW21A

Run in Batch: 241121A9, Run Date: 11/21/2024 17:40, Prep Date: 11/21/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		100.3	70.0	130.0	4.7	30.0

Matrix Spike (MS)

Lab Sample ID: 241121A9.6868908M, Parent Sample ID: S68689.07

Run in Batch: 241121A9, Run Date: 11/21/2024 18:06, Prep Date: 11/21/2024, Matrix: WW, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		84.9	70.0	130.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 241121A9.6868909N, Parent Sample ID: 241121A9.6868908M

Run in Batch: 241121A9, Run Date: 11/21/2024 18:31, Prep Date: 11/21/2024, Matrix: WW, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		89.2	70.0	130.0	4.3	30.0

Merit Laboratories Login Checklist

Lab Set ID: S68773
Client: ARCADIS_NOVI (ARCADIS U.S., Inc.)
Project: RACER Lansing 30214036.0470B
Submitted: 11/20/2024 14:50 Login User: MAM

Attention: Kaitlyn Hunt
Address: Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	6.0 IR
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[ ] Yes	[X] No	[ ] N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	[X] Yes	[ ] No	[ ] N/A	Do sample have correct chemical preservation	
11.	[ ] Yes	[ ] No	[X] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[ ] Yes	[X] No	[ ] N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[ ] Yes	[X] No	[ ] N/A	Samples require laboratory filtration	
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[ ] No	[X] N/A	Do water VOC, TOX, DO or Alkalinity bottles contain	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories, Inc.
2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # _____ OF _____ 171342

CHAIN OF CUSTODY RECORD

PLANT-3

REPORT TO

CONTACT NAME: KAITLYN HUNT
COMPANY: ARCADIS
ADDRESS: 28550 CABOT DR. STE 500
CITY: NOVI STATE: MI ZIP CODE: 48377
PHONE NO.: 248-994-2240 CELL NO.: 947-777-5215 P.O. NO.: 30214036-0470B
E-MAIL ADDRESS: KAITLYN.HUNT@ARCADIS.COM QUOTE NO.:

INVOICE TO

CONTACT NAME ☐ SAME
COMPANY
ADDRESS
CITY STATE ZIP CODE
PHONE NO. E-MAIL ADDRESS

PROJECT NO./NAME: RACER LANSING
SAMPLER(S) - PLEASE PRINT/SIGN NAME: BRIAN J. COGAN

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☐ STANDARD ☐ OTHER _____

DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☐ EDD ☐ OTHER _____

MATRIX CODE: W=WATER GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR WS=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
☐ Other _____

Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	COLLECTION DATE	COLLECTION TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	1,4 DIOXANE 8260B SIMS
68773.01	11/19/24	0930	PW-14-03R_111924	GW	3		3						3

RELINQUISHED BY: SIGNATURE/ORGANIZATION: Danielle Dicks/Arcadis ☑ Sampler DATE: 11/20/24 TIME: 1450
RECEIVED BY: SIGNATURE/ORGANIZATION: Johanna Murray DATE: 11/20/24 TIME: 1450
RELINQUISHED BY: SIGNATURE/ORGANIZATION: DATE: TIME:
RECEIVED BY: SIGNATURE/ORGANIZATION: DATE: TIME:

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SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS
SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS

NOTES: TEMP. ON ARRIVAL 6.0

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 1.26.22

Report of Analysis

Arcadis, US. Inc.
630 Plaza Drive
Suite 200
Highlands Ranch, CO 80129
Attention: Tiffany Linder

Project Name: RACER Lansing GWS

Project Number: 30214036.0370A

Lot Number:**ZK21005**

Date Completed:12/18/2024

12/18/2024 2:33 PM
Approved and released by:
Project Manager II: **Kathy E. Smith**





The electronic signature above is the equivalent of a handwritten signature.
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Pace Analytical Services, LLC (*formerly Shealy Environmental Services, Inc.*)
106 Vantage Point Drive West Columbia, SC 29172
Tel: 803-791-9700 Fax: 803-791-9111 www.pacelabs.com

Case Narrative
Arcadis, US. Inc.
Lot Number: ZK21005

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.
Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved The NELAC Institute (TNI) standards, the Pace Analytical Services, LLC ("Pace") Laboratory Quality Manual, standard operating procedures (SOPs), and Pace policies. Additionally, the DoD QSM version 5.4 has been followed for these samples, and specifically Table B-15 was followed for all PFAS samples. Any exceptions to the TNI standards, the Laboratory Quality Manual, SOPs, the DoD QSM, or policies are qualified on the results page or discussed below.

All QC associated with these samples were compliant with DOD QSM 5.4 table B-15 and our PFAS SOP. Correction factors (CF) are used to calculate the original sample concentration. The CF is the inverse of the concentration factor (sample volume / extract final volume) times the dilution factor (DF). The CF is calculated as follows:

CF = DF * FV / Vo
FV is volume of extract (mL)
Vo is initial sample volume (mL)
DF is dilution factor. For undiluted analysis, DF = 1.

Sample concentration for aqueous samples:
Concentration (ng/L) = Cs*CF,

$$C_s = \frac{\left(\frac{(A_s x C_{is})}{A_{is}}\right) - B}{M1}$$

Where

C_s is on column concentration of target analyte in the sample (ng/L)
C_{is} is concentration of internal standard in the sample (ng/L)
A_s is peak response of target analyte in the sample
A_{is} is peak response of internal standard in the sample
M1 is the average RF from ICAL or the slope from linear regression ICAL
B is the y-intercept from the ICAL

Pace is a TNI accredited laboratory; however, the following analyses are currently not listed on our TNI scope of accreditation: E. coli and Total coliforms SM 9223 B-2004, Solid Chemical Material: TOC Walkley-Black, Biological Tissue: All, Non-Potable Water: SGT-HEM EPA 1664B, Silica EPA 200.7, Boron, Calcium, Silicon, Strontium EPA 200.8, Bicarbonate, Carbonate, and Hydroxide Alkalinity SM 2320 B-2011, SM 9221 C E-2006 & SM 9222D-2006, Strontium SW-846 6010D, VOC SM 6200 B-2011, Fecal Coliform Colilert-18. If you have any questions regarding this report, please contact the Pace Project Manager listed on the cover page.

Manual integration summaries are provided at the end of this report when applicable.

PFAS
The following sample was diluted due to the nature of the sample matrix: ZK21005-001. The LOQ has been elevated to reflect the dilution. The sample was dark in color.

Surrogate recovery for the following sample was outside the upper control limit: ZK21005-003. This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

Sample Summary

Arcadis, US. Inc.

Lot Number: ZK21005

Project Name: RACER Lansing GWS

Project Number: 30214036.0370A

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	MW-20-130_111224	Aqueous	11/12/2024 1235	11/21/2024
002	EB-02_111524	Aqueous	11/15/2024 1340	11/21/2024
003	MW-21-139_111224	Aqueous	11/12/2024 1110	11/21/2024
004	DUP-01_111224	Aqueous	11/12/2024	11/21/2024

(4 samples)

Detection Summary

Arcadis, US. Inc.

Lot Number: ZK21005

Project Name: RACER Lansing GWS

Project Number: 30214036.0370A

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	MW-20-130_111224	Aqueous	PFBS	PFAS by ID	41		ng/L	5
001	MW-20-130_111224	Aqueous	PFPeS	PFAS by ID	11	J	ng/L	5
001	MW-20-130_111224	Aqueous	PFHxS	PFAS by ID	12	J	ng/L	5
001	MW-20-130_111224	Aqueous	PFBA	PFAS by ID	35		ng/L	5
001	MW-20-130_111224	Aqueous	PFHpA	PFAS by ID	24		ng/L	5
001	MW-20-130_111224	Aqueous	PFHxA	PFAS by ID	82		ng/L	5
001	MW-20-130_111224	Aqueous	PFOA	PFAS by ID	9.7	J	ng/L	5
001	MW-20-130_111224	Aqueous	PFPeA	PFAS by ID	52		ng/L	5
003	MW-21-139_111224	Aqueous	8:2 FTS	PFAS by ID	47		ng/L	9
003	MW-21-139_111224	Aqueous	6:2 FTS	PFAS by ID	61		ng/L	9
003	MW-21-139_111224	Aqueous	PFBS	PFAS by ID	20		ng/L	9
003	MW-21-139_111224	Aqueous	PFHpS	PFAS by ID	47		ng/L	9
003	MW-21-139_111224	Aqueous	PFPeS	PFAS by ID	31		ng/L	9
003	MW-21-139_111224	Aqueous	PFHxS	PFAS by ID	410		ng/L	9
003	MW-21-139_111224	Aqueous	PFBA	PFAS by ID	59		ng/L	9
003	MW-21-139_111224	Aqueous	PFDA	PFAS by ID	7.3		ng/L	9
003	MW-21-139_111224	Aqueous	PFHpA	PFAS by ID	83		ng/L	9
003	MW-21-139_111224	Aqueous	PFHxA	PFAS by ID	120		ng/L	9
003	MW-21-139_111224	Aqueous	PFNA	PFAS by ID	23		ng/L	9
003	MW-21-139_111224	Aqueous	PFOA	PFAS by ID	130		ng/L	9
003	MW-21-139_111224	Aqueous	PFPeA	PFAS by ID	100		ng/L	9
003	MW-21-139_111224	Aqueous	PFOS	PFAS by ID	1900		ng/L	9
004	DUP-01_111224	Aqueous	8:2 FTS	PFAS by ID	57		ng/L	11
004	DUP-01_111224	Aqueous	6:2 FTS	PFAS by ID	65		ng/L	11
004	DUP-01_111224	Aqueous	PFBS	PFAS by ID	25		ng/L	11
004	DUP-01_111224	Aqueous	PFHpS	PFAS by ID	43		ng/L	11
004	DUP-01_111224	Aqueous	PFNS	PFAS by ID	0.85	J	ng/L	11
004	DUP-01_111224	Aqueous	PFOSA	PFAS by ID	1.0	J	ng/L	11
004	DUP-01_111224	Aqueous	PFPeS	PFAS by ID	38		ng/L	11
004	DUP-01_111224	Aqueous	PFHxS	PFAS by ID	400		ng/L	11
004	DUP-01_111224	Aqueous	PFBA	PFAS by ID	63		ng/L	11
004	DUP-01_111224	Aqueous	PFDA	PFAS by ID	7.1		ng/L	11
004	DUP-01_111224	Aqueous	PFHpA	PFAS by ID	78		ng/L	11
004	DUP-01_111224	Aqueous	PFHxA	PFAS by ID	130		ng/L	11
004	DUP-01_111224	Aqueous	PFNA	PFAS by ID	23		ng/L	11
004	DUP-01_111224	Aqueous	PFOA	PFAS by ID	140		ng/L	11
004	DUP-01_111224	Aqueous	PFPeA	PFAS by ID	120		ng/L	11
004	DUP-01_111224	Aqueous	PFOS	PFAS by ID	2100		ng/L	11

(38 detections)

PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21005-001**

Description: **MW-20-130_111224** Matrix: **Aqueous**

Date Sampled: **11/12/2024 1235** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/11/2024 2214	BWS	12/09/2024 1046	21136

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		40	2.4	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		40	3.3	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		40	8.0	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		40	10	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		40	4.4	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		40	10	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		40	2.4	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		40	3.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		40	4.7	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**41**		**20**	**2.1**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		20	3.9	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		20	2.5	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		20	3.6	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		20	3.1	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	**2706-91-4**	**PFAS by ID SOP**	**11**	**J**	**20**	**3.0**	**ng/L**	**1**
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**12**	**J**	**20**	**2.8**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**35**		**20**	**3.0**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		20	2.6	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		20	2.4	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**24**		**20**	**2.2**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**82**		**20**	**3.4**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		20	2.3	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**9.7**	**J**	**20**	**4.1**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**52**		**20**	**2.7**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		20	3.0	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		20	2.6	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		20	3.1	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		143	25-150
13C2_6:2FTS		113	25-150
13C2_8:2FTS		81	25-150
13C2_PFDoA		68	25-150
13C2_PFTeDA		77	25-150
13C3_PFBS		78	25-150
13C3_PFHxS		73	25-150
13C3-HFPO-DA		81	25-150
13C4_PFBA		56	25-150
13C4_PFHpA		67	25-150
13C5_PFHxA		83	25-150
13C5_PFPeA		74	25-150
13C6_PFDA		72	25-150
13C7_PFUdA		75	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21005-001**

Description: **MW-20-130_111224** Matrix: **Aqueous**

Date Sampled: **11/12/2024 1235** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/11/2024 2214	BWS	12/09/2024 1046	21136

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		78	25-150
13C8_PFOS		87	25-150
13C8_PFOSA		87	10-150
13C9_PFNA		76	25-150
d5-EtFOSAA		90	25-150
d3-MeFOSAA		94	25-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
ND = Not detected at or above the DL	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis			S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21005-002**

Description: **EB-02_111524** Matrix: **Aqueous**

Date Sampled: **11/15/2024 1340** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/12/2024 1638	TAD	12/11/2024 1345	21187

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.9	0.42	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.9	0.57	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.9	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		6.9	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		6.9	0.76	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.9	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.9	0.42	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.9	0.65	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.9	0.81	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.5	0.36	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.5	0.67	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.5	0.43	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.5	0.62	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.5	0.53	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.5	0.51	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.5	0.48	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		3.5	0.52	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.5	0.45	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.5	0.41	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.5	0.39	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.5	0.60	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.5	0.40	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.5	0.72	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.5	0.47	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.5	0.52	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.5	0.46	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.5	0.54	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.5	1.7	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		85	25-150
13C2_6:2FTS		84	25-150
13C2_8:2FTS		78	25-150
13C2_PFDoA		86	25-150
13C2_PFTeDA		73	25-150
13C3_PFBS		84	25-150
13C3_PFHxS		84	25-150
13C3-HFPO-DA		89	25-150
13C4_PFBA		81	25-150
13C4_PFHpA		88	25-150
13C5_PFHxA		83	25-150
13C5_PFPeA		85	25-150
13C6_PFDA		81	25-150
13C7_PFUdA		79	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21005-002**

Description: **EB-02_111524** Matrix: **Aqueous**

Date Sampled: **11/15/2024 1340** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/12/2024 1638	TAD	12/11/2024 1345	21187

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		95	25-150
13C8_PFOS		89	25-150
13C8_PFOSA		74	10-150
13C9_PFNA		84	25-150
d5-EtFOSAA		88	25-150
d3-MeFOSAA		89	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21005-003**

Description: **MW-21-139_111224** Matrix: **Aqueous**

Date Sampled: **11/12/2024 1110** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/11/2024 2224	BWS	12/09/2024 1046	21136
2	SOP SPE	PFAS by ID SOP	10	12/12/2024 1728	TAD	12/09/2024 1046	21136

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.7	0.46	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.7	0.64	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	**39108-34-4**	**PFAS by ID SOP**	**47**		**7.7**	**1.5**	**ng/L**	**1**
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	**27619-97-2**	**PFAS by ID SOP**	**61**		**7.7**	**1.9**	**ng/L**	**1**
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.7	0.84	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.7	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.7	0.46	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.7	0.72	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.7	0.89	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**20**		**3.8**	**0.40**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.8	0.75	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	**375-92-8**	**PFAS by ID SOP**	**47**		**3.8**	**0.48**	**ng/L**	**1**
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.8	0.68	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.8	0.59	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	**2706-91-4**	**PFAS by ID SOP**	**31**		**3.8**	**0.57**	**ng/L**	**1**
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**410**		**38**	**5.3**	**ng/L**	**2**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**59**		**3.8**	**0.58**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	**335-76-2**	**PFAS by ID SOP**	**7.3**		**3.8**	**0.50**	**ng/L**	**1**
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.8	0.45	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**83**		**3.8**	**0.43**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**120**		**3.8**	**0.66**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**23**		**3.8**	**0.44**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**130**		**3.8**	**0.79**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**100**		**3.8**	**0.52**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.8	0.57	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.8	0.51	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.8	0.60	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**1900**		**38**	**19**	**ng/L**	**2**

Surrogate	Run 1 Q	Run 1 % Recovery	Run 1 Acceptance Limits	Run 2 Q	Run 2 % Recovery	Run 2 Acceptance Limits
13C2_4:2FTS	N	170	25-150		77	25-150
13C2_6:2FTS		138	25-150		83	25-150
13C2_8:2FTS		101	25-150		78	25-150
13C2_PFDoA		70	25-150		73	25-150
13C2_PFTeDA		71	25-150		76	25-150
13C3_PFBS		72	25-150		77	25-150
13C3_PFHxS		68	25-150		74	25-150
13C3-HFPO-DA		64	25-150		85	25-150
13C4_PFBA		47	25-150		77	25-150
13C4_PFHpA		59	25-150		72	25-150
13C5_PFHxA		68	25-150		71	25-150
13C5_PFPeA		65	25-150		73	25-150
13C6_PFDA		75	25-150		64	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21005-003**

Description: **MW-21-139_111224** Matrix: **Aqueous**

Date Sampled: **11/12/2024 1110** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/11/2024 2224	BWS	12/09/2024 1046	21136
2	SOP SPE	PFAS by ID SOP	10	12/12/2024 1728	TAD	12/09/2024 1046	21136

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		79	25-150		71	25-150
13C8_PFOA		73	25-150		74	25-150
13C8_PFOS		75	25-150		81	25-150
13C8_PFOSA		85	10-150		80	10-150
13C9_PFNA		58	25-150		71	25-150
d5-EtFOSAA		105	25-150		89	25-150
d3-MeFOSAA		96	25-150		80	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21005-004**

Description: **DUP-01_111224** Matrix: **Aqueous**

Date Sampled: **11/12/2024** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/11/2024 2234	BWS	12/09/2024 1046	21136
2	SOP SPE	PFAS by ID SOP	10	12/12/2024 1738	TAD	12/09/2024 1046	21136

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.5	0.45	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.5	0.63	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	**39108-34-4**	**PFAS by ID SOP**	**57**		**7.5**	**1.5**	**ng/L**	**1**
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	**27619-97-2**	**PFAS by ID SOP**	**65**		**7.5**	**1.9**	**ng/L**	**1**
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.5	0.82	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.5	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.5	0.46	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.5	0.71	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.5	0.88	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**25**		**3.8**	**0.39**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.8	0.73	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	**375-92-8**	**PFAS by ID SOP**	**43**		**3.8**	**0.47**	**ng/L**	**1**
Perfluoro-1-nonanesulfonic acid (PFNS)	**68259-12-1**	**PFAS by ID SOP**	**0.85**	**J**	**3.8**	**0.67**	**ng/L**	**1**
Perfluoro-1-octanesulfonamide (PFOSA)	**754-91-6**	**PFAS by ID SOP**	**1.0**	**J**	**3.8**	**0.58**	**ng/L**	**1**
Perfluoro-1-pentanesulfonic acid (PFPeS)	**2706-91-4**	**PFAS by ID SOP**	**38**		**3.8**	**0.56**	**ng/L**	**1**
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**400**		**38**	**5.2**	**ng/L**	**2**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**63**		**3.8**	**0.57**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	**335-76-2**	**PFAS by ID SOP**	**7.1**		**3.8**	**0.50**	**ng/L**	**1**
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.8	0.45	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**78**		**3.8**	**0.42**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**130**		**3.8**	**0.65**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**23**		**3.8**	**0.44**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**140**		**3.8**	**0.78**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**120**		**3.8**	**0.51**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.8	0.57	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.8	0.50	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.8	0.59	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**2100**		**38**	**19**	**ng/L**	**2**

Surrogate	Q	Run 1 % Recovery	Run 1 Acceptance Limits	Q	Run 2 % Recovery	Run 2 Acceptance Limits
13C2_4:2FTS		150	25-150		93	25-150
13C2_6:2FTS		129	25-150		83	25-150
13C2_8:2FTS		91	25-150		72	25-150
13C2_PFDoA		67	25-150		74	25-150
13C2_PFTeDA		69	25-150		65	25-150
13C3_PFBS		62	25-150		75	25-150
13C3_PFHxS		69	25-150		71	25-150
13C3-HFPO-DA		70	25-150		79	25-150
13C4_PFBA		42	25-150		76	25-150
13C4_PFHpA		59	25-150		69	25-150
13C5_PFHxA		64	25-150		74	25-150
13C5_PFPeA		59	25-150		75	25-150
13C6_PFDA		75	25-150		72	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21005-004**

Description: **DUP-01_111224** Matrix: **Aqueous**

Date Sampled: **11/12/2024** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/11/2024 2234	BWS	12/09/2024 1046	21136
2	SOP SPE	PFAS by ID SOP	10	12/12/2024 1738	TAD	12/09/2024 1046	21136

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		70	25-150		66	25-150
13C8_PFOA		67	25-150		72	25-150
13C8_PFOS		67	25-150		77	25-150
13C8_PFOSA		82	10-150		70	10-150
13C9_PFNA		60	25-150		69	25-150
d5-EtFOSAA		90	25-150		76	25-150
d3-MeFOSAA		90	25-150		80	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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QC Summary

PFAS by LC/MS/MS - MB

Sample ID: ZQ21136-001
Batch: 21136
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/09/2024 1046

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
9Cl-PF3ONS	ND		1	8.0	0.48	ng/L	12/11/2024 2134
11Cl-PF3OUdS	ND		1	8.0	0.66	ng/L	12/11/2024 2134
8:2 FTS	ND		1	8.0	1.6	ng/L	12/11/2024 2134
6:2 FTS	ND		1	8.0	2.0	ng/L	12/11/2024 2134
4:2 FTS	ND		1	8.0	0.87	ng/L	12/11/2024 2134
GenX	ND		1	8.0	2.1	ng/L	12/11/2024 2134
ADONA	ND		1	8.0	0.48	ng/L	12/11/2024 2134
EtFOSAA	ND		1	8.0	0.75	ng/L	12/11/2024 2134
MeFOSAA	ND		1	8.0	0.93	ng/L	12/11/2024 2134
PFBS	ND		1	4.0	0.41	ng/L	12/11/2024 2134
PFDS	ND		1	4.0	0.78	ng/L	12/11/2024 2134
PFHpS	ND		1	4.0	0.50	ng/L	12/11/2024 2134
PFNS	ND		1	4.0	0.71	ng/L	12/11/2024 2134
PFOSA	ND		1	4.0	0.61	ng/L	12/11/2024 2134
PFPeS	ND		1	4.0	0.59	ng/L	12/11/2024 2134
PFHxS	ND		1	4.0	0.55	ng/L	12/11/2024 2134
PFBA	ND		1	4.0	0.60	ng/L	12/11/2024 2134
PFDA	ND		1	4.0	0.52	ng/L	12/11/2024 2134
PFDoA	ND		1	4.0	0.47	ng/L	12/11/2024 2134
PFHpA	ND		1	4.0	0.45	ng/L	12/11/2024 2134
PFHxA	ND		1	4.0	0.69	ng/L	12/11/2024 2134
PFNA	ND		1	4.0	0.46	ng/L	12/11/2024 2134
PFOA	ND		1	4.0	0.83	ng/L	12/11/2024 2134
PFPeA	ND		1	4.0	0.54	ng/L	12/11/2024 2134
PFTeDA	ND		1	4.0	0.60	ng/L	12/11/2024 2134
PFTrDA	ND		1	4.0	0.53	ng/L	12/11/2024 2134
PFUdA	ND		1	4.0	0.63	ng/L	12/11/2024 2134
PFOS	ND		1	4.0	2.0	ng/L	12/11/2024 2134

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		80	25-150
13C2_6:2FTS		123	25-150
13C2_8:2FTS		81	25-150
13C2_PFDoA		69	25-150
13C2_PFTeDA		74	25-150
13C3_PFBS		77	25-150
13C3_PFHxS		74	25-150
13C3-HFPO-DA		84	25-150
13C4_PFBA		74	25-150
13C4_PFHpA		69	25-150
13C5_PFHxA		71	25-150
13C5_PFPeA		70	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: ZQ21136-001
Batch: 21136
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/09/2024 1046

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		72	25-150
13C7_PFUdA		72	25-150
13C8_PFOA		73	25-150
13C8_PFOS		81	25-150
13C8_PFOSA		72	10-150
13C9_PFNA		77	25-150
d5-EtFOSAA		89	25-150
d3-MeFOSAA		88	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ21136-002
Batch: 21136
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/09/2024 1046

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	7.5	8.0		1	107	50-150	12/11/2024 2144
11Cl-PF3OUdS	7.5	7.6		1	102	50-150	12/11/2024 2144
8:2 FTS	7.7	8.6		1	113	50-150	12/11/2024 2144
6:2 FTS	7.6	8.4		1	111	50-150	12/11/2024 2144
4:2 FTS	7.5	7.8		1	105	50-150	12/11/2024 2144
GenX	16	15		1	92	50-150	12/11/2024 2144
ADONA	7.5	9.5		1	127	50-150	12/11/2024 2144
EtFOSAA	8.0	7.2		1	90	50-150	12/11/2024 2144
MeFOSAA	8.0	7.7		1	97	50-150	12/11/2024 2144
PFBS	7.1	8.4		1	119	50-150	12/11/2024 2144
PFDS	7.7	8.0		1	103	50-150	12/11/2024 2144
PFHpS	7.6	9.6		1	126	50-150	12/11/2024 2144
PFNS	7.7	8.6		1	112	50-150	12/11/2024 2144
PFOSA	8.0	8.4		1	106	50-150	12/11/2024 2144
PFPeS	7.5	9.7		1	129	50-150	12/11/2024 2144
PFHxS	7.3	8.1		1	111	50-150	12/11/2024 2144
PFBA	8.0	9.6		1	120	50-150	12/11/2024 2144
PFDA	8.0	11		1	133	50-150	12/11/2024 2144
PFDoA	8.0	11		1	134	50-150	12/11/2024 2144
PFHpA	8.0	9.6		1	121	50-150	12/11/2024 2144
PFHxA	8.0	9.2		1	114	50-150	12/11/2024 2144
PFNA	8.0	9.5		1	119	50-150	12/11/2024 2144
PFOA	8.0	9.6		1	120	50-150	12/11/2024 2144
PFPeA	8.0	8.7		1	108	50-150	12/11/2024 2144
PFTeDA	8.0	9.5		1	119	50-150	12/11/2024 2144
PFTrDA	8.0	9.6		1	120	50-150	12/11/2024 2144
PFUdA	8.0	9.5		1	119	50-150	12/11/2024 2144
PFOS	7.4	8.4		1	113	50-150	12/11/2024 2144

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		75	25-150
13C2_6:2FTS		116	25-150
13C2_8:2FTS		83	25-150
13C2_PFDoA		68	25-150
13C2_PFTeDA		74	25-150
13C3_PFBS		73	25-150
13C3_PFHxS		74	25-150
13C3-HFPO-DA		88	25-150
13C4_PFBA		73	25-150
13C4_PFHpA		69	25-150
13C5_PFHxA		73	25-150
13C5_PFPeA		80	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ21136-002
Batch: 21136
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/09/2024 1046

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		70	25-150
13C7_PFUdA		74	25-150
13C8_PFOA		77	25-150
13C8_PFOS		85	25-150
13C8_PFOSA		78	10-150
13C9_PFNA		76	25-150
d5-EtFOSAA		88	25-150
d3-MeFOSAA		94	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: ZQ21187-001
Batch: 21187
Analytical Method: PFAS by ID SOP
Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/11/2024 1345

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
9Cl-PF3ONS	ND		1	8.0	0.48	ng/L	12/12/2024 1458
11Cl-PF3OUdS	ND		1	8.0	0.66	ng/L	12/12/2024 1458
8:2 FTS	ND		1	8.0	1.6	ng/L	12/12/2024 1458
6:2 FTS	ND		1	8.0	2.0	ng/L	12/12/2024 1458
4:2 FTS	ND		1	8.0	0.87	ng/L	12/12/2024 1458
GenX	ND		1	8.0	2.1	ng/L	12/12/2024 1458
ADONA	ND		1	8.0	0.48	ng/L	12/12/2024 1458
EtFOSAA	ND		1	8.0	0.75	ng/L	12/12/2024 1458
MeFOSAA	ND		1	8.0	0.93	ng/L	12/12/2024 1458
PFBS	ND		1	4.0	0.41	ng/L	12/12/2024 1458
PFDS	ND		1	4.0	0.78	ng/L	12/12/2024 1458
PFHpS	ND		1	4.0	0.50	ng/L	12/12/2024 1458
PFNS	ND		1	4.0	0.71	ng/L	12/12/2024 1458
PFOSA	ND		1	4.0	0.61	ng/L	12/12/2024 1458
PFPeS	ND		1	4.0	0.59	ng/L	12/12/2024 1458
PFHxS	ND		1	4.0	0.55	ng/L	12/12/2024 1458
PFBA	ND		1	4.0	0.60	ng/L	12/12/2024 1458
PFDA	ND		1	4.0	0.52	ng/L	12/12/2024 1458
PFDoA	ND		1	4.0	0.47	ng/L	12/12/2024 1458
PFHpA	ND		1	4.0	0.45	ng/L	12/12/2024 1458
PFHxA	ND		1	4.0	0.69	ng/L	12/12/2024 1458
PFNA	ND		1	4.0	0.46	ng/L	12/12/2024 1458
PFOA	ND		1	4.0	0.83	ng/L	12/12/2024 1458
PFPeA	ND		1	4.0	0.54	ng/L	12/12/2024 1458
PFTeDA	ND		1	4.0	0.60	ng/L	12/12/2024 1458
PFTrDA	ND		1	4.0	0.53	ng/L	12/12/2024 1458
PFUdA	ND		1	4.0	0.63	ng/L	12/12/2024 1458
PFOS	ND		1	4.0	2.0	ng/L	12/12/2024 1458

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		82	25-150
13C2_6:2FTS		86	25-150
13C2_8:2FTS		85	25-150
13C2_PFDoA		79	25-150
13C2_PFTeDA		72	25-150
13C3_PFBS		76	25-150
13C3_PFHxS		78	25-150
13C3-HFPO-DA		91	25-150
13C4_PFBA		78	25-150
13C4_PFHpA		78	25-150
13C5_PFHxA		82	25-150
13C5_PFPeA		82	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: ZQ21187-001
Batch: 21187
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/11/2024 1345

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		73	25-150
13C7_PFUdA		71	25-150
13C8_PFOA		82	25-150
13C8_PFOS		80	25-150
13C8_PFOSA		67	10-150
13C9_PFNA		78	25-150
d5-EtFOSAA		75	25-150
d3-MeFOSAA		81	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ21187-002
Batch: 21187
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/11/2024 1345

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	7.5	7.6		1	102	50-150	12/12/2024 1508
11Cl-PF3OUdS	7.5	7.5		1	100	50-150	12/12/2024 1508
8:2 FTS	7.7	6.5		1	85	50-150	12/12/2024 1508
6:2 FTS	7.6	7.6		1	101	50-150	12/12/2024 1508
4:2 FTS	7.5	8.0		1	107	50-150	12/12/2024 1508
GenX	16	15		1	96	50-150	12/12/2024 1508
ADONA	7.5	8.4		1	112	50-150	12/12/2024 1508
EtFOSAA	8.0	8.6		1	107	50-150	12/12/2024 1508
MeFOSAA	8.0	8.6		1	108	50-150	12/12/2024 1508
PFBS	7.1	8.1		1	115	50-150	12/12/2024 1508
PFDS	7.7	8.6		1	111	50-150	12/12/2024 1508
PFHpS	7.6	8.8		1	116	50-150	12/12/2024 1508
PFNS	7.7	7.0		1	91	50-150	12/12/2024 1508
PFOSA	8.0	8.8		1	110	50-150	12/12/2024 1508
PFPeS	7.5	8.1		1	108	50-150	12/12/2024 1508
PFHxS	7.3	7.3		1	101	50-150	12/12/2024 1508
PFBA	8.0	8.7		1	109	50-150	12/12/2024 1508
PFDA	8.0	8.2		1	103	50-150	12/12/2024 1508
PFDoA	8.0	9.7		1	121	50-150	12/12/2024 1508
PFHpA	8.0	8.3		1	104	50-150	12/12/2024 1508
PFHxA	8.0	8.5		1	107	50-150	12/12/2024 1508
PFNA	8.0	8.5		1	106	50-150	12/12/2024 1508
PFOA	8.0	7.3		1	91	50-150	12/12/2024 1508
PFPeA	8.0	8.8		1	111	50-150	12/12/2024 1508
PFTeDA	8.0	8.5		1	106	50-150	12/12/2024 1508
PFTrDA	8.0	9.4		1	118	50-150	12/12/2024 1508
PFUdA	8.0	9.3		1	116	50-150	12/12/2024 1508
PFOS	7.4	7.7		1	104	50-150	12/12/2024 1508

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		81	25-150
13C2_6:2FTS		88	25-150
13C2_8:2FTS		75	25-150
13C2_PFDoA		73	25-150
13C2_PFTeDA		75	25-150
13C3_PFBS		83	25-150
13C3_PFHxS		74	25-150
13C3-HFPO-DA		92	25-150
13C4_PFBA		82	25-150
13C4_PFHpA		80	25-150
13C5_PFHxA		82	25-150
13C5_PFPeA		81	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ21187-002
Batch: 21187
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/11/2024 1345

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		76	25-150
13C7_PFUdA		75	25-150
13C8_PFOA		95	25-150
13C8_PFOS		81	25-150
13C8_PFOSA		63	10-150
13C9_PFNA		82	25-150
d5-EtFOSAA		80	25-150
d3-MeFOSAA		82	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID: ZK21005-002MS
Batch: 21187
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/11/2024 1345

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	ND	6.5	6.0		1	93	50-150	12/12/2024 1648
11Cl-PF3OUdS	ND	6.5	6.5		1	100	50-150	12/12/2024 1648
8:2 FTS	ND	6.6	6.7		1	100	50-150	12/12/2024 1648
6:2 FTS	ND	6.6	6.0		1	92	50-150	12/12/2024 1648
4:2 FTS	ND	6.5	5.9		1	92	50-150	12/12/2024 1648
GenX	ND	14	13		1	95	50-150	12/12/2024 1648
ADONA	ND	6.5	6.6		1	101	50-150	12/12/2024 1648
EtFOSAA	ND	6.9	6.2		1	90	50-150	12/12/2024 1648
MeFOSAA	ND	6.9	6.6		1	95	50-150	12/12/2024 1648
PFBS	ND	6.1	5.9		1	97	50-150	12/12/2024 1648
PFDS	ND	6.7	6.2		1	93	50-150	12/12/2024 1648
PFHpS	ND	6.6	6.4		1	98	50-150	12/12/2024 1648
PFNS	ND	6.6	6.7		1	101	50-150	12/12/2024 1648
PFOSA	ND	6.9	7.2		1	104	50-150	12/12/2024 1648
PFPeS	ND	6.5	6.2		1	95	50-150	12/12/2024 1648
PFHxS	ND	6.3	5.9		1	93	50-150	12/12/2024 1648
PFBA	ND	6.9	7.2		1	104	50-150	12/12/2024 1648
PFDA	ND	6.9	7.4		1	107	50-150	12/12/2024 1648
PFDoA	ND	6.9	7.0		1	102	50-150	12/12/2024 1648
PFHpA	ND	6.9	6.6		1	95	50-150	12/12/2024 1648
PFHxA	ND	6.9	7.3		1	106	50-150	12/12/2024 1648
PFNA	ND	6.9	7.8		1	113	50-150	12/12/2024 1648
PFOA	ND	6.9	6.6		1	96	50-150	12/12/2024 1648
PFPeA	ND	6.9	6.8		1	98	50-150	12/12/2024 1648
PFTeDA	ND	6.9	6.9		1	100	50-150	12/12/2024 1648
PFTrDA	ND	6.9	7.2		1	104	50-150	12/12/2024 1648
PFUdA	ND	6.9	6.7		1	96	50-150	12/12/2024 1648
PFOS	ND	6.4	6.1		1	95	50-150	12/12/2024 1648

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		81	25-150
13C2_6:2FTS		104	25-150
13C2_8:2FTS		77	25-150
13C2_PFDoA		90	25-150
13C2_PFTeDA		82	25-150
13C3_PFBS		94	25-150
13C3_PFHxS		87	25-150
13C3-HFPO-DA		99	25-150
13C4_PFBA		87	25-150
13C4_PFHpA		90	25-150
13C5_PFHxA		93	25-150
13C5_PFPeA		90	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID: ZK21005-002MS
Batch: 21187
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/11/2024 1345

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		86	25-150
13C7_PFUdA		86	25-150
13C8_PFOA		98	25-150
13C8_PFOS		94	25-150
13C8_PFOSA		77	10-150
13C9_PFNA		87	25-150
d5-EtFOSAA		91	25-150
d3-MeFOSAA		89	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Chain of Custody
and
Miscellaneous Documents

Pace Analytical® **Chain of Custody Record**

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106 Vantage Point Drive
West Columbia, South Carolina 29172
Telephone No. (803) 791-9700 Fax No. (803) 791-9111
www.pacelabs.com

Plant 2 Number

ZK21005

| | | |

Pace Analytical® Chain of Custody Record

Plant 2

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106 Vantage Point Drive
West Columbia, South Carolina 29172
Telephone No. (803) 791-9700 Fax No. (803) 791-9111
www.pacelabs.com

Number

Client: Arcadis	Report to Contact: Tiffany Linder, Kaitlyn Hunt	Telephone No. / E-mail: (248)609-4013/ kaitlyn.hunt@arcadis.com
Address: 28550 Cabot Drive, Suite 500	Sample's Signature: X _____ Printed Name	Analysis (Attach list if more space is needed)
City: Novi / State: MI / Zip Code: 48377		
Project Name: RACER Lansing GWS		
Project Number: 30214036.0370A	P.O. No.	

Quote No.

Page _____ of _____

ZK21005

KBSS

Sample ID / Description (Containers for each sample may be combined on one line)	Collection Date(s)	Collection Time (military)	G=Grab C=Composite	Matrix: Aqueous	Matrix: Solid	Matrix: Non-Aqueous	Matrix:	No of Containers by Preservative Type: Unpres.	H2SO4	HNO3	HCl	NaOH	5035 Kit	Field Filtered	PFAS (Method 537M, EGLE 28 compounds)	Remarks / Cooler I.D.
MW-21-139_111224	11/12/24	1110	G	X				2							2	
DUP-01_111224	11/12/24	—	G	X				2							2	

Turn Around Time Required (Prior lab approval required for expedited TAT)
☑ Standard ☐ Rush (Please Specify)

Sample Disposal
☐ Return to Client ☑ Disposal by Lab

Possible Hazard Identification (List any known hazards in the remarks)
☐ Non-Hazardous ☐ Flammable ☐ Skin Irritant ☐ SDS provided ☐ Unknown

QC Requirements

	Date	Time		Date	Time
1. Relinquished by	11/20/24	1530	1. Received by		
2. Relinquished by			2. Received by		
3. Relinquished by			3. Received by		
4. Relinquished by FedEx	11/21/24	940	4. Laboratory Received by	11/21/24	940

Note: All samples are retained for four weeks from receipt unless other arrangements are made

LAB USE ONLY
Received on Ice (Check) ☑ Y ☐ N ☐ Ice Pack

Receipt Temp. 3.1 °C

Temp. Blank ☑ Y / ☐ N

PACE ANALYTICAL SERVICES, LLC

DC# Title: FNV-FRM-WCOL-0286 v02_Samples Receipt Checklist (SRC)
Effective Date: 8/2/2022

Sample Receipt Checklist (SRC)

Client: Arcadis Cooler Inspected by/date: KDRW / 11/21/2024 Lot #: 24.2005

Means of receipt: ☐ Pace ☐ Client ☐ UPS ☑ FedEx ☐ Other:

☐ Yes	☑ No		1. Were custody seals present on the cooler?
☐ Yes	☐ No	☑ NA	2. If custody seals were present, were they intact and unbroken?

pH Strip ID: NA Chlorine Strip ID: NA Tested by: NA

Original temperature upon receipt / Derived (Corrected) temperature upon receipt %Solid Snap-Cup ID: NA

1.9/1.9°C 3.1/3.1 °C NA /NA °C NA /NA °C

Method: ☐ Temperature Blank ☐ Against Bottles IR Gun ID: 8 IR Gun Correction Factor: 0 °C

Method of coolant: ☑ Wet Ice ☐ Ice Packs ☐ Dry Ice ☐ None

☐ Yes	☐ No	☐ NA	3. Were all coolers received at or below 6.0°C? If no, was Project Manager notified? PM was Notified by: phone / email / face-to-face (circle one).
☑ Yes	☐ No	☐ NA	4. Is the commercial courier's packing slip attached to this form?
☑ Yes	☐ No		5. Were proper custody procedures (relinquished/received) followed?
☑ Yes	☐ No		6. Were sample IDs listed on the COC and all sample containers?
☑ Yes	☐ No		7. Was collection date & time listed on the COC and all sample containers?
☑ Yes	☐ No		8. Did all container label information (ID, date, time) agree with the COC?
☑ Yes	☐ No		9. Were tests to be performed listed on the COC?
☑ Yes	☐ No		10. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)?
☑ Yes	☐ No		11. Was adequate sample volume available?
☑ Yes	☐ No		12. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
☑ Yes	☐ No		13. Were all samples containers accounted for? (No missing/excess)
☐ Yes	☐ No	☑ NA	14. Were VOA, 8015C and RSK-175 samples free of bubbles >"pea-size" (¼"or 6mm in diameter) in any of the VOA vials?
☐ Yes	☐ No	☑ NA	15. Were all DRO/metals/nutrient samples received at a pH of < 2?
☐ Yes	☐ No	☑ NA	16. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
☐ Yes	☐ No	☑ NA	17. Were all applicable NH_3/TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?
☑ Yes	☐ No	☐ NA	18. Was the quote number listed on the container label? If yes, Quote # 25329

Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)

Sample(s) NA were received incorrectly preserved and were adjusted accordingly in sample receiving with NA mL of circle one: H2SO4, HNO3, HCl, NaOH using SR # NA. ☐
Time of preservation NA. If more than one preservative is needed, please note in the comments below.

Sample(s) NA were received with bubbles >6 mm in diameter.

Samples(s) NA were received with TRC > 0.5 mg/L (If #19 is ***no***) and were adjusted accordingly in sample receiving with sodium thiosulfate ($Na_2S_2O_3$) with Unique ID: NA.

Comments:

Qualtrax ID: 56360

Report of Analysis

Arcadis, US. Inc.
630 Plaza Drive
Suite 200
Highlands Ranch, CO 80129
Attention: Tiffany Linder

Project Name: RACER Lansing GWS

Project Number: 30214036.0370A

Lot Number:**ZK21006**

Date Completed:12/20/2024

12/20/2024 5:45 PM
Approved and released by:
Project Manager II: **Kathy E. Smith**





The electronic signature above is the equivalent of a handwritten signature.
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Pace Analytical Services, LLC (*formerly Shealy Environmental Services, Inc.*)
106 Vantage Point Drive West Columbia, SC 29172
Tel: 803-791-9700 Fax: 803-791-9111 www.pacelabs.com

Case Narrative
Arcadis, US. Inc.
Lot Number: ZK21006

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.
Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved The NELAC Institute (TNI) standards, the Pace Analytical Services, LLC ("Pace") Laboratory Quality Manual, standard operating procedures (SOPs), and Pace policies. Additionally, the DoD QSM version 5.4 has been followed for these samples, and specifically Table B-15 was followed for all PFAS samples. Any exceptions to the TNI standards, the Laboratory Quality Manual, SOPs, the DoD QSM, or policies are qualified on the results page or discussed below.

All QC associated with these samples were compliant with DOD QSM 5.4 table B-15 and our PFAS SOP.
Correction factors (CF) are used to calculate the original sample concentration. The CF is the inverse of the concentration factor (sample volume / extract final volume) times the dilution factor (DF). The CF is calculated as follows:

CF = DF * FV / Vo
FV is volume of extract (mL)
Vo is initial sample volume (mL)
DF is dilution factor. For undiluted analysis, DF = 1.

Sample concentration for aqueous samples:
Concentration (ng/L) = Cs*CF,

$$C_s = \frac{\left(\frac{(A_s x C_{is})}{A_{is}}\right) - B}{M1}$$

Where

C_s is on column concentration of target analyte in the sample (ng/L)
C_{is} is concentration of internal standard in the sample (ng/L)
A_s is peak response of target analyte in the sample
A_{is} is peak response of internal standard in the sample
M1 is the average RF from ICAL or the slope from linear regression ICAL
B is the y-intercept from the ICAL

Pace is a TNI accredited laboratory; however, the following analyses are currently not listed on our TNI scope of accreditation: E. coli and Total coliforms SM 9223 B-2004, Solid Chemical Material: TOC Walkley-Black, Biological Tissue: All, Non-Potable Water: SGT-HEM EPA 1664B, Silica EPA 200.7, Boron, Calcium, Silicon, Strontium EPA 200.8, Bicarbonate, Carbonate, and Hydroxide Alkalinity SM 2320 B-2011, SM 9221 C E-2006 & SM 9222D-2006, Strontium SW-846 6010D, VOC SM 6200 B-2011, Fecal Coliform Colilert-18. If you have any questions regarding this report, please contact the Pace Project Manager listed on the cover page.

Manual integration summaries are provided at the end of this report when applicable.

PFAS
The following samples were diluted due to the nature of the sample matrix: ZK21006-002, ZK21006-012. The LOQ has been elevated to reflect the dilution.The samples were dark in color.

For sample ZK21006-013 the sample matrix prevented full volume from being extracted, precluding method mandated bottle rinse. Elution solvent was aliquoted directly into the reservoir, rinsing the inside. Surrogate recovery may be adversely affected.

Surrogate recovery for the following samples was outside the upper control limit: ZK21006-003, ZK21006-004, ZK21006-005, ZK21006-010, ZK21006-014. These samples did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

The MS/MSD associated with sample ZK21006-003 had compounds recovered outside of the acceptance limits. The LCS was recovered within the required acceptance limits; therefore, this demonstrates a matrix effect and data quality is not impacted.

Sample Summary

Arcadis, US. Inc.

Lot Number: ZK21006

Project Name: RACER Lansing GWS

Project Number: 30214036.0370A

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	EB-03_111824	Aqueous	11/18/2024 0940	11/21/2024
002	MW-18-101_111824	Aqueous	11/18/2024 1045	11/21/2024
003	MW-18-88_111924	Aqueous	11/19/2024 1125	11/21/2024
004	MW-18-95_111924	Aqueous	11/19/2024 1255	11/21/2024
005	MW-18-98_111924	Aqueous	11/19/2024 1405	11/21/2024
006	EB-05_112024	Aqueous	11/20/2024 0825	11/21/2024
007	MW-18-105_112024	Aqueous	11/20/2024 0920	11/21/2024
008	DUP-03_112024	Aqueous	11/20/2024	11/21/2024
009	MW-18-100_112024	Aqueous	11/20/2024 1050	11/21/2024
010	UNK-15_111924	Aqueous	11/19/2024 1030	11/21/2024
011	MW-19-111_111924	Aqueous	11/19/2024 1205	11/21/2024
012	MW-19-108_111924	Aqueous	11/19/2024 1335	11/21/2024
013	MW-19-107_111924	Aqueous	11/19/2024 1500	11/21/2024
014	MW-18-99_112024	Aqueous	11/20/2024 1210	11/21/2024

(14 samples)

Detection Summary

Arcadis, US. Inc.

Lot Number: ZK21006

Project Name: RACER Lansing GWS

Project Number: 30214036.0370A

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
002	MW-18-101_111824	Aqueous	PFBA	PFAS by ID	4.0	J	ng/L	9
003	MW-18-88_111924	Aqueous	PFBS	PFAS by ID	2.0	J	ng/L	11
003	MW-18-88_111924	Aqueous	PFHpS	PFAS by ID	3.8		ng/L	11
003	MW-18-88_111924	Aqueous	PFPeS	PFAS by ID	0.89	J	ng/L	11
003	MW-18-88_111924	Aqueous	PFHxS	PFAS by ID	6.8		ng/L	11
003	MW-18-88_111924	Aqueous	PFBA	PFAS by ID	8.6		ng/L	11
003	MW-18-88_111924	Aqueous	PFHpA	PFAS by ID	0.81	J	ng/L	11
003	MW-18-88_111924	Aqueous	PFNA	PFAS by ID	0.54	J	ng/L	11
003	MW-18-88_111924	Aqueous	PFOA	PFAS by ID	9.7		ng/L	11
003	MW-18-88_111924	Aqueous	PFOS	PFAS by ID	310		ng/L	11
004	MW-18-95_111924	Aqueous	PFBS	PFAS by ID	2.1	J	ng/L	13
004	MW-18-95_111924	Aqueous	PFHpS	PFAS by ID	0.78	J	ng/L	13
004	MW-18-95_111924	Aqueous	PFHxS	PFAS by ID	1.7	J	ng/L	13
004	MW-18-95_111924	Aqueous	PFBA	PFAS by ID	12		ng/L	13
004	MW-18-95_111924	Aqueous	PFNA	PFAS by ID	1.0	J	ng/L	13
004	MW-18-95_111924	Aqueous	PFOA	PFAS by ID	4.1		ng/L	13
004	MW-18-95_111924	Aqueous	PFOS	PFAS by ID	42		ng/L	13
005	MW-18-98_111924	Aqueous	PFBS	PFAS by ID	0.75	J	ng/L	15
005	MW-18-98_111924	Aqueous	PFHxS	PFAS by ID	0.63	J	ng/L	15
005	MW-18-98_111924	Aqueous	PFBA	PFAS by ID	2.3	J	ng/L	15
005	MW-18-98_111924	Aqueous	PFNA	PFAS by ID	0.47	J	ng/L	15
005	MW-18-98_111924	Aqueous	PFOS	PFAS by ID	77		ng/L	15
006	EB-05_112024	Aqueous	PFBA	PFAS by ID	2.3	J	ng/L	17
006	EB-05_112024	Aqueous	PFHpA	PFAS by ID	1.2	J	ng/L	17
006	EB-05_112024	Aqueous	PFHxA	PFAS by ID	24		ng/L	17
006	EB-05_112024	Aqueous	PFOA	PFAS by ID	2.3	J	ng/L	17
006	EB-05_112024	Aqueous	PFPeA	PFAS by ID	20		ng/L	17
007	MW-18-105_112024	Aqueous	PFBS	PFAS by ID	4.9		ng/L	19
007	MW-18-105_112024	Aqueous	PFHxS	PFAS by ID	1.6	J	ng/L	19
007	MW-18-105_112024	Aqueous	PFBA	PFAS by ID	1.3	J	ng/L	19
007	MW-18-105_112024	Aqueous	PFOS	PFAS by ID	3.4		ng/L	19
008	DUP-03_112024	Aqueous	PFBS	PFAS by ID	4.6		ng/L	21
008	DUP-03_112024	Aqueous	PFHxS	PFAS by ID	1.7	J	ng/L	21
008	DUP-03_112024	Aqueous	PFBA	PFAS by ID	1.3	J	ng/L	21
008	DUP-03_112024	Aqueous	PFOS	PFAS by ID	4.5		ng/L	21
009	MW-18-100_112024	Aqueous	PFBS	PFAS by ID	2.1	J	ng/L	23
009	MW-18-100_112024	Aqueous	PFHxS	PFAS by ID	3.2	J	ng/L	23
009	MW-18-100_112024	Aqueous	PFBA	PFAS by ID	11		ng/L	23
009	MW-18-100_112024	Aqueous	PFHpA	PFAS by ID	3.0	J	ng/L	23
009	MW-18-100_112024	Aqueous	PFHxA	PFAS by ID	5.9		ng/L	23
009	MW-18-100_112024	Aqueous	PFOA	PFAS by ID	4.1		ng/L	23
009	MW-18-100_112024	Aqueous	PFPeA	PFAS by ID	4.2		ng/L	23
010	UNK-15_111924	Aqueous	PFBS	PFAS by ID	1.7	J	ng/L	25

Detection Summary (Continued)

Lot Number: ZK21006

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
010	UNK-15_111924	Aqueous	PFHpS	PFAS by ID	11		ng/L	25
010	UNK-15_111924	Aqueous	PFPeS	PFAS by ID	1.9	J	ng/L	25
010	UNK-15_111924	Aqueous	PFHxS	PFAS by ID	16		ng/L	25
010	UNK-15_111924	Aqueous	PFBA	PFAS by ID	18		ng/L	25
010	UNK-15_111924	Aqueous	PFDA	PFAS by ID	4.6		ng/L	25
010	UNK-15_111924	Aqueous	PFHpA	PFAS by ID	5.3		ng/L	25
010	UNK-15_111924	Aqueous	PFHxA	PFAS by ID	6.1		ng/L	25
010	UNK-15_111924	Aqueous	PFNA	PFAS by ID	4.5		ng/L	25
010	UNK-15_111924	Aqueous	PFOA	PFAS by ID	21		ng/L	25
010	UNK-15_111924	Aqueous	PFPeA	PFAS by ID	4.7		ng/L	25
010	UNK-15_111924	Aqueous	PFOS	PFAS by ID	1300		ng/L	25
011	MW-19-111_111924	Aqueous	PFBS	PFAS by ID	1.4	J	ng/L	27
011	MW-19-111_111924	Aqueous	PFHxS	PFAS by ID	1.5	J	ng/L	27
011	MW-19-111_111924	Aqueous	PFBA	PFAS by ID	2.5	J	ng/L	27
011	MW-19-111_111924	Aqueous	PFOA	PFAS by ID	5.5		ng/L	27
012	MW-19-108_111924	Aqueous	PFBS	PFAS by ID	2.5	J	ng/L	29
013	MW-19-107_111924	Aqueous	PFBS	PFAS by ID	2.7	J	ng/L	31
013	MW-19-107_111924	Aqueous	PFHxS	PFAS by ID	7.1		ng/L	31
013	MW-19-107_111924	Aqueous	PFBA	PFAS by ID	2.4	J	ng/L	31
013	MW-19-107_111924	Aqueous	PFHpA	PFAS by ID	0.71	J	ng/L	31
013	MW-19-107_111924	Aqueous	PFOA	PFAS by ID	3.4	J	ng/L	31
013	MW-19-107_111924	Aqueous	PFPeA	PFAS by ID	1.3	J	ng/L	31
013	MW-19-107_111924	Aqueous	PFOS	PFAS by ID	2.5	J	ng/L	31
014	MW-18-99_112024	Aqueous	PFBS	PFAS by ID	1.4	J	ng/L	33
014	MW-18-99_112024	Aqueous	PFHpS	PFAS by ID	1.0	J	ng/L	33
014	MW-18-99_112024	Aqueous	PFHxS	PFAS by ID	2.3	J	ng/L	33
014	MW-18-99_112024	Aqueous	PFBA	PFAS by ID	13		ng/L	33
014	MW-18-99_112024	Aqueous	PFDA	PFAS by ID	1.1	J	ng/L	33
014	MW-18-99_112024	Aqueous	PFHpA	PFAS by ID	3.1	J	ng/L	33
014	MW-18-99_112024	Aqueous	PFHxA	PFAS by ID	7.9		ng/L	33
014	MW-18-99_112024	Aqueous	PFNA	PFAS by ID	1.5	J	ng/L	33
014	MW-18-99_112024	Aqueous	PFOA	PFAS by ID	7.7		ng/L	33
014	MW-18-99_112024	Aqueous	PFPeA	PFAS by ID	5.6		ng/L	33
014	MW-18-99_112024	Aqueous	PFOS	PFAS by ID	75		ng/L	33

(77 detections)

PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21006-001**

Description: **EB-03_111824** Matrix: **Aqueous**

Date Sampled: **11/18/2024 0940** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/14/2024 0131	TAD	12/12/2024 0956	21208

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.1	0.43	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.1	0.59	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.1	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.1	0.78	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.1	0.43	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.1	0.67	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.1	0.83	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.6	0.37	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.6	0.69	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.6	0.44	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.6	0.63	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.6	0.55	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.6	0.53	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.6	0.49	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		3.6	0.53	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.6	0.47	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.6	0.42	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.6	0.40	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.6	0.61	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.6	0.41	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.6	0.74	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.6	0.48	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.6	0.53	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.6	0.47	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.6	0.56	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.6	1.8	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		89	25-150
13C2_6:2FTS		91	25-150
13C2_8:2FTS		85	25-150
13C2_PFDoA		80	25-150
13C2_PFTeDA		82	25-150
13C3_PFBS		86	25-150
13C3_PFHxS		89	25-150
13C3-HFPO-DA		99	25-150
13C4_PFBA		84	25-150
13C4_PFHpA		80	25-150
13C5_PFHxA		86	25-150
13C5_PFPeA		100	25-150
13C6_PFDA		87	25-150
13C7_PFUdA		85	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21006-001**

Description: **EB-03_111824** Matrix: **Aqueous**

Date Sampled: **11/18/2024 0940** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/14/2024 0131	TAD	12/12/2024 0956	21208

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		94	25-150
13C8_PFOS		81	25-150
13C8_PFOSA		76	10-150
13C9_PFNA		92	25-150
d5-EtFOSAA		80	25-150
d3-MeFOSAA		87	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21006-002**

Description: **MW-18-101_111824** Matrix: **Aqueous**

Date Sampled: **11/18/2024 1045** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/14/2024 0141	TAD	12/12/2024 0956	21208

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		40	2.4	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		40	3.3	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		40	8.0	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		40	10	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		40	4.4	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		40	10	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		40	2.4	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		40	3.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		40	4.7	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		20	2.1	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		20	3.9	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		20	2.5	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		20	3.6	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		20	3.1	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		20	3.0	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		20	2.8	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**4.0**	**J**	**20**	**3.0**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		20	2.6	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		20	2.4	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		20	2.2	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		20	3.4	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		20	2.3	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		20	4.1	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		20	2.7	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		20	3.0	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		20	2.6	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		20	3.1	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		109	25-150
13C2_6:2FTS		88	25-150
13C2_8:2FTS		88	25-150
13C2_PFDoA		84	25-150
13C2_PFTeDA		78	25-150
13C3_PFBS		83	25-150
13C3_PFHxS		91	25-150
13C3-HFPO-DA		99	25-150
13C4_PFBA		87	25-150
13C4_PFHpA		84	25-150
13C5_PFHxA		90	25-150
13C5_PFPeA		90	25-150
13C6_PFDA		95	25-150
13C7_PFUdA		83	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21006-002**

Description: **MW-18-101_111824** Matrix: **Aqueous**

Date Sampled: **11/18/2024 1045** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/14/2024 0141	TAD	12/12/2024 0956	21208

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		93	25-150
13C8_PFOS		85	25-150
13C8_PFOSA		80	10-150
13C9_PFNA		79	25-150
d5-EtFOSAA		85	25-150
d3-MeFOSAA		89	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21006-003**

Description: **MW-18-88_111924** Matrix: **Aqueous**

Date Sampled: **11/19/2024 1125** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/14/2024 0151	TAD	12/12/2024 0956	21208
2	SOP SPE	PFAS by ID SOP	5	12/18/2024 1520	TAD	12/12/2024 0956	21208

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.7	0.40	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.7	0.56	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.7	1.3	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	6.7	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	6.7	0.73	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.7	1.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.7	0.41	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.7	0.63	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.7	0.78	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**2.0**	**J**	**3.4**	**0.35**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.4	0.65	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	**375-92-8**	**PFAS by ID SOP**	**3.8**		**3.4**	**0.42**	**ng/L**	**1**
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.4	0.60	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	**2706-91-4**	**PFAS by ID SOP**	**0.89**	**J**	**3.4**	**0.50**	**ng/L**	**1**
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**6.8**		**3.4**	**0.46**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**8.6**		**3.4**	**0.50**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.4	0.44	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.4	0.40	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**0.81**	**J**	**3.4**	**0.37**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.4	0.58	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**0.54**	**J**	**3.4**	**0.39**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**9.7**		**3.4**	**0.69**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.4	0.46	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.4	0.50	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.4	0.44	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.4	0.52	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**310**		**17**	**8.4**	**ng/L**	**2**

Surrogate	Run 1 Q	Run 1 % Recovery	Run 1 Acceptance Limits	Run 2 Q	Run 2 % Recovery	Run 2 Acceptance Limits
13C2_4:2FTS	N	224	25-150		120	25-150
13C2_6:2FTS	N	158	25-150		94	25-150
13C2_8:2FTS		100	25-150		83	25-150
13C2_PFDoA		71	25-150		69	25-150
13C2_PFTeDA		66	25-150		59	25-150
13C3_PFBS		79	25-150		83	25-150
13C3_PFHxS		73	25-150		81	25-150
13C3-HFPO-DA		86	25-150		79	25-150
13C4_PFBA		57	25-150		77	25-150
13C4_PFHpA		79	25-150		80	25-150
13C5_PFHxA		76	25-150		81	25-150
13C5_PFPeA		81	25-150		89	25-150
13C6_PFDA		82	25-150		72	25-150

LOQ = Limit of Quantitation
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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21006-003**

Description: **MW-18-88_111924** Matrix: **Aqueous**

Date Sampled: **11/19/2024 1125** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/14/2024 0151	TAD	12/12/2024 0956	21208
2	SOP SPE	PFAS by ID SOP	5	12/18/2024 1520	TAD	12/12/2024 0956	21208

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		66	25-150		64	25-150
13C8_PFOA		82	25-150		88	25-150
13C8_PFOS		78	25-150		77	25-150
13C8_PFOSA		69	10-150		71	10-150
13C9_PFNA		75	25-150		78	25-150
d5-EtFOSAA		77	25-150		79	25-150
d3-MeFOSAA		83	25-150		82	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21006-004**

Description: **MW-18-95_111924** Matrix: **Aqueous**

Date Sampled: **11/19/2024 1255** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/14/2024 0221	TAD	12/12/2024 0956	21208

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.8	0.41	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.8	0.56	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.8	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		6.8	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	6.8	0.74	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.8	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.8	0.41	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.8	0.64	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.8	0.79	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**2.1**	**J**	**3.4**	**0.35**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.4	0.66	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	**375-92-8**	**PFAS by ID SOP**	**0.78**	**J**	**3.4**	**0.42**	**ng/L**	**1**
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.4	0.61	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.4	0.52	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**1.7**	**J**	**3.4**	**0.47**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**12**		**3.4**	**0.51**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.4	0.40	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.4	0.38	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.4	0.59	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**1.0**	**J**	**3.4**	**0.39**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**4.1**		**3.4**	**0.71**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.4	0.46	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.4	0.53	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**42**		**3.4**	**1.7**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	201	25-150
13C2_6:2FTS		146	25-150
13C2_8:2FTS		98	25-150
13C2_PFDoA		73	25-150
13C2_PFTeDA		69	25-150
13C3_PFBS		82	25-150
13C3_PFHxS		86	25-150
13C3-HFPO-DA		82	25-150
13C4_PFBA		62	25-150
13C4_PFHpA		73	25-150
13C5_PFHxA		72	25-150
13C5_PFPeA		78	25-150
13C6_PFDA		84	25-150
13C7_PFUdA		79	25-150

LOQ = Limit of Quantitation
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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21006-004**

Description: **MW-18-95_111924** Matrix: **Aqueous**

Date Sampled: **11/19/2024 1255** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/14/2024 0221	TAD	12/12/2024 0956	21208

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		86	25-150
13C8_PFOS		76	25-150
13C8_PFOSA		77	10-150
13C9_PFNA		76	25-150
d5-EtFOSAA		84	25-150
d3-MeFOSAA		88	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
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P = The RPD between two GC columns exceeds 40%
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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21006-005**

Description: **MW-18-98_111924** Matrix: **Aqueous**

Date Sampled: **11/19/2024 1405** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/14/2024 0251	TAD	12/12/2024 0956	21208

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.1	0.43	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.1	0.58	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.1	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.1	0.77	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.1	0.43	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.1	0.66	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.1	0.82	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**0.75**	**J**	**3.5**	**0.37**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.5	0.69	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.5	0.44	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.5	0.63	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.5	0.54	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.5	0.52	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**0.63**	**J**	**3.5**	**0.49**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**2.3**	**J**	**3.5**	**0.53**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.5	0.46	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.5	0.42	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.5	0.39	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.5	0.61	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**0.47**	**J**	**3.5**	**0.41**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.5	0.73	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.5	0.48	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.5	0.53	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.5	0.47	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.5	0.55	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**77**		**3.5**	**1.8**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	157	25-150
13C2_6:2FTS		97	25-150
13C2_8:2FTS		87	25-150
13C2_PFDoA		74	25-150
13C2_PFTeDA		72	25-150
13C3_PFBS		79	25-150
13C3_PFHxS		71	25-150
13C3-HFPO-DA		89	25-150
13C4_PFBA		64	25-150
13C4_PFHpA		76	25-150
13C5_PFHxA		87	25-150
13C5_PFPeA		93	25-150
13C6_PFDA		83	25-150
13C7_PFUdA		77	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21006-005**

Description: **MW-18-98_111924** Matrix: **Aqueous**

Date Sampled: **11/19/2024 1405** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/14/2024 0251	TAD	12/12/2024 0956	21208

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		85	25-150
13C8_PFOS		77	25-150
13C8_PFOSA		79	10-150
13C9_PFNA		74	25-150
d5-EtFOSAA		82	25-150
d3-MeFOSAA		85	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21006-006**

Description: **EB-05_112024** Matrix: **Aqueous**

Date Sampled: **11/20/2024 0825** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/14/2024 0301	TAD	12/12/2024 0956	21208

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.0	0.42	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.0	0.58	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.0	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.0	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.0	0.76	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.0	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.0	0.42	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.0	0.66	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.0	0.81	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.5	0.36	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.5	0.68	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.5	0.44	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.5	0.62	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.5	0.54	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.5	0.52	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.5	0.48	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**2.3**	**J**	**3.5**	**0.52**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.5	0.46	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.5	0.41	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**1.2**	**J**	**3.5**	**0.39**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**24**		**3.5**	**0.60**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.5	0.40	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**2.3**	**J**	**3.5**	**0.72**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**20**		**3.5**	**0.48**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.5	0.52	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.5	0.46	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.5	0.55	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.5	1.7	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		92	25-150
13C2_6:2FTS		104	25-150
13C2_8:2FTS		82	25-150
13C2_PFDoA		79	25-150
13C2_PFTeDA		80	25-150
13C3_PFBS		95	25-150
13C3_PFHxS		101	25-150
13C3-HFPO-DA		100	25-150
13C4_PFBA		88	25-150
13C4_PFHpA		90	25-150
13C5_PFHxA		86	25-150
13C5_PFPeA		95	25-150
13C6_PFDA		91	25-150
13C7_PFUdA		91	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21006-006**

Description: **EB-05_112024** Matrix: **Aqueous**

Date Sampled: **11/20/2024 0825** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/14/2024 0301	TAD	12/12/2024 0956	21208

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		92	25-150
13C8_PFOS		93	25-150
13C8_PFOSA		83	10-150
13C9_PFNA		84	25-150
d5-EtFOSAA		89	25-150
d3-MeFOSAA		96	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21006-007**

Description: **MW-18-105_112024** Matrix: **Aqueous**

Date Sampled: **11/20/2024 0920** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/14/2024 0311	TAD	12/12/2024 0956	21208

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.8	0.41	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.8	0.57	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.8	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		6.8	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		6.8	0.75	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.8	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.8	0.41	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.8	0.64	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.8	0.80	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**4.9**		**3.4**	**0.35**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.4	0.66	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.4	0.43	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.4	0.61	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.4	0.52	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**1.6**	**J**	**3.4**	**0.47**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**1.3**	**J**	**3.4**	**0.51**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.4	0.40	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.4	0.38	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.4	0.59	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.4	0.39	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.4	0.71	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.4	0.46	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.4	0.53	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**3.4**		**3.4**	**1.7**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		109	25-150
13C2_6:2FTS		112	25-150
13C2_8:2FTS		91	25-150
13C2_PFDoA		83	25-150
13C2_PFTeDA		82	25-150
13C3_PFBS		80	25-150
13C3_PFHxS		86	25-150
13C3-HFPO-DA		82	25-150
13C4_PFBA		68	25-150
13C4_PFHpA		81	25-150
13C5_PFHxA		84	25-150
13C5_PFPeA		90	25-150
13C6_PFDA		87	25-150
13C7_PFUdA		85	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21006-007**

Description: **MW-18-105_112024** Matrix: **Aqueous**

Date Sampled: **11/20/2024 0920** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/14/2024 0311	TAD	12/12/2024 0956	21208

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		94	25-150
13C8_PFOS		90	25-150
13C8_PFOSA		76	10-150
13C9_PFNA		80	25-150
d5-EtFOSAA		86	25-150
d3-MeFOSAA		94	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21006-008**

Description: **DUP-03_112024** Matrix: **Aqueous**

Date Sampled: **11/20/2024** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/14/2024 0321	TAD	12/12/2024 0956	21208

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.8	0.41	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.8	0.56	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.8	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		6.8	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		6.8	0.74	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.8	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.8	0.41	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.8	0.64	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.8	0.79	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**4.6**		**3.4**	**0.35**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.4	0.66	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.4	0.42	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.4	0.60	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.4	0.52	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.4	0.50	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**1.7**	**J**	**3.4**	**0.47**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**1.3**	**J**	**3.4**	**0.51**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.4	0.44	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.4	0.40	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.4	0.38	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.4	0.58	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.4	0.39	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.4	0.70	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.4	0.46	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.4	0.53	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**4.5**		**3.4**	**1.7**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		146	25-150
13C2_6:2FTS		111	25-150
13C2_8:2FTS		77	25-150
13C2_PFDoA		72	25-150
13C2_PFTeDA		66	25-150
13C3_PFBS		86	25-150
13C3_PFHxS		85	25-150
13C3-HFPO-DA		102	25-150
13C4_PFBA		68	25-150
13C4_PFHpA		83	25-150
13C5_PFHxA		86	25-150
13C5_PFPeA		85	25-150
13C6_PFDA		81	25-150
13C7_PFUdA		74	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
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S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21006-008**

Description: **DUP-03_112024** Matrix: **Aqueous**

Date Sampled: **11/20/2024** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/14/2024 0321	TAD	12/12/2024 0956	21208

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		94	25-150
13C8_PFOS		81	25-150
13C8_PFOSA		79	10-150
13C9_PFNA		70	25-150
d5-EtFOSAA		76	25-150
d3-MeFOSAA		94	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21006-009**

Description: **MW-18-100_112024** Matrix: **Aqueous**

Date Sampled: **11/20/2024 1050** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/14/2024 0332	TAD	12/12/2024 0956	21208

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.0	0.42	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.0	0.58	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.0	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.0	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.0	0.76	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.0	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.0	0.42	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.0	0.65	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.0	0.81	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**2.1**	**J**	**3.5**	**0.36**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.5	0.68	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.5	0.44	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.5	0.62	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.5	0.54	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.5	0.52	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**3.2**	**J**	**3.5**	**0.48**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**11**		**3.5**	**0.52**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.5	0.46	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.5	0.41	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**3.0**	**J**	**3.5**	**0.39**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**5.9**		**3.5**	**0.60**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.5	0.40	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**4.1**		**3.5**	**0.72**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**4.2**		**3.5**	**0.47**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.5	0.52	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.5	0.46	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.5	0.55	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.5	1.7	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		104	25-150
13C2_6:2FTS		93	25-150
13C2_8:2FTS		90	25-150
13C2_PFDoA		74	25-150
13C2_PFTeDA		69	25-150
13C3_PFBS		77	25-150
13C3_PFHxS		78	25-150
13C3-HFPO-DA		97	25-150
13C4_PFBA		77	25-150
13C4_PFHpA		78	25-150
13C5_PFHxA		87	25-150
13C5_PFPeA		90	25-150
13C6_PFDA		84	25-150
13C7_PFUdA		76	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21006-009**

Description: **MW-18-100_112024** Matrix: **Aqueous**

Date Sampled: **11/20/2024 1050** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/14/2024 0332	TAD	12/12/2024 0956	21208

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		93	25-150
13C8_PFOS		79	25-150
13C8_PFOSA		80	10-150
13C9_PFNA		75	25-150
d5-EtFOSAA		69	25-150
d3-MeFOSAA		89	25-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
ND = Not detected at or above the DL	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis			S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21006-010**

Description: **UNK-15_111924** Matrix: **Aqueous**

Date Sampled: **11/19/2024 1030** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/14/2024 0342	TAD	12/12/2024 0956	21208
2	SOP SPE	PFAS by ID SOP	5	12/18/2024 1610	TAD	12/12/2024 0956	21208

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.7	0.40	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.7	0.55	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND	Q	6.7	1.3	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	6.7	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	6.7	0.73	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.7	1.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.7	0.40	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.7	0.63	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.7	0.78	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**1.7**	**J**	**3.3**	**0.35**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.3	0.65	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	**375-92-8**	**PFAS by ID SOP**	**11**		**3.3**	**0.42**	**ng/L**	**1**
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.3	0.59	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.3	0.51	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	**2706-91-4**	**PFAS by ID SOP**	**1.9**	**J**	**3.3**	**0.50**	**ng/L**	**1**
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**16**		**3.3**	**0.46**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**18**		**3.3**	**0.50**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	**335-76-2**	**PFAS by ID SOP**	**4.6**		**3.3**	**0.44**	**ng/L**	**1**
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.3	0.39	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**5.3**		**3.3**	**0.37**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**6.1**		**3.3**	**0.57**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**4.5**		**3.3**	**0.39**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**21**		**3.3**	**0.69**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**4.7**		**3.3**	**0.45**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.3	0.50	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.3	0.44	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.3	0.52	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**1300**		**17**	**8.3**	**ng/L**	**2**

Surrogate	Run 1 Q	Run 1 % Recovery	Run 1 Acceptance Limits	Run 2 Q	Run 2 % Recovery	Run 2 Acceptance Limits
13C2_4:2FTS	N	240	25-150	N	151	25-150
13C2_6:2FTS	N	180	25-150		121	25-150
13C2_8:2FTS	N	164	25-150		89	25-150
13C2_PFDoA		73	25-150		65	25-150
13C2_PFTeDA		70	25-150		55	25-150
13C3_PFBS		72	25-150		77	25-150
13C3_PFHxS		80	25-150		82	25-150
13C3-HFPO-DA		68	25-150		72	25-150
13C4_PFBA		45	25-150		70	25-150
13C4_PFHpA		67	25-150		74	25-150
13C5_PFHxA		69	25-150		79	25-150
13C5_PFPeA		65	25-150		86	25-150
13C6_PFDA		73	25-150		64	25-150

LOQ = Limit of Quantitation
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E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21006-010**

Description: **UNK-15_111924** Matrix: **Aqueous**

Date Sampled: **11/19/2024 1030** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/14/2024 0342	TAD	12/12/2024 0956	21208
2	SOP SPE	PFAS by ID SOP	5	12/18/2024 1610	TAD	12/12/2024 0956	21208

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		78	25-150		66	25-150
13C8_PFOA		80	25-150		77	25-150
13C8_PFOS		72	25-150		72	25-150
13C8_PFOSA		76	10-150		72	10-150
13C9_PFNA		72	25-150		81	25-150
d5-EtFOSAA		91	25-150		89	25-150
d3-MeFOSAA		107	25-150		84	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21006-011**

Description: **MW-19-111_111924** Matrix: **Aqueous**

Date Sampled: **11/19/2024 1205** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/14/2024 0352	TAD	12/12/2024 0956	21208

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.9	0.41	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.9	0.57	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.9	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		6.9	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		6.9	0.75	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.9	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.9	0.41	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.9	0.64	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.9	0.80	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**1.4**	**J**	**3.4**	**0.36**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.4	0.67	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.4	0.43	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.4	0.61	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.4	0.53	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**1.5**	**J**	**3.4**	**0.47**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**2.5**	**J**	**3.4**	**0.51**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.4	0.40	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.4	0.38	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.4	0.59	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.4	0.40	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**5.5**		**3.4**	**0.71**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.4	0.47	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.4	0.54	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.4	1.7	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		149	25-150
13C2_6:2FTS		102	25-150
13C2_8:2FTS		84	25-150
13C2_PFDoA		79	25-150
13C2_PFTeDA		75	25-150
13C3_PFBS		77	25-150
13C3_PFHxS		82	25-150
13C3-HFPO-DA		84	25-150
13C4_PFBA		53	25-150
13C4_PFHpA		79	25-150
13C5_PFHxA		81	25-150
13C5_PFPeA		77	25-150
13C6_PFDA		73	25-150
13C7_PFUdA		77	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21006-011**

Description: **MW-19-111_111924** Matrix: **Aqueous**

Date Sampled: **11/19/2024 1205** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/14/2024 0352	TAD	12/12/2024 0956	21208

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		90	25-150
13C8_PFOS		83	25-150
13C8_PFOSA		76	10-150
13C9_PFNA		77	25-150
d5-EtFOSAA		77	25-150
d3-MeFOSAA		84	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21006-012**

Description: **MW-19-108_111924** Matrix: **Aqueous**

Date Sampled: **11/19/2024 1335** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/18/2024 1731	TAD	12/13/2024 1109	21259

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		40	2.4	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		40	3.3	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		40	8.0	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		40	10	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		40	4.4	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		40	10	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		40	2.4	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		40	3.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		40	4.7	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**2.5**	**J**	**20**	**2.1**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		20	3.9	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		20	2.5	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		20	3.6	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		20	3.1	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		20	3.0	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		20	2.8	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		20	3.0	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		20	2.6	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		20	2.4	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		20	2.2	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		20	3.4	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		20	2.3	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		20	4.1	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		20	2.7	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		20	3.0	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		20	2.6	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		20	3.1	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		77	25-150
13C2_6:2FTS		97	25-150
13C2_8:2FTS		75	25-150
13C2_PFDoA		76	25-150
13C2_PFTeDA		66	25-150
13C3_PFBS		73	25-150
13C3_PFHxS		81	25-150
13C3-HFPO-DA		81	25-150
13C4_PFBA		76	25-150
13C4_PFHpA		79	25-150
13C5_PFHxA		81	25-150
13C5_PFPeA		85	25-150
13C6_PFDA		66	25-150
13C7_PFUdA		73	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21006-012**

Description: **MW-19-108_111924** Matrix: **Aqueous**

Date Sampled: **11/19/2024 1335** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/18/2024 1731	TAD	12/13/2024 1109	21259

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		82	25-150
13C8_PFOS		74	25-150
13C8_PFOSA		68	10-150
13C9_PFNA		74	25-150
d5-EtFOSAA		73	25-150
d3-MeFOSAA		77	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21006-013**

Description: **MW-19-107_111924** Matrix: **Aqueous**

Date Sampled: **11/19/2024 1500** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/18/2024 1801	TAD	12/13/2024 1109	21259

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.3	0.44	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.3	0.61	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.3	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.3	0.80	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.3	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.3	0.44	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.3	0.69	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.3	0.85	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**2.7**	**J**	**3.7**	**0.38**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.7	0.71	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.7	0.46	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.7	0.65	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.7	0.56	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.7	0.54	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**7.1**		**3.7**	**0.51**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**2.4**	**J**	**3.7**	**0.55**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.7	0.48	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.7	0.43	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**0.71**	**J**	**3.7**	**0.41**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.7	0.63	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.7	0.42	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**3.4**	**J**	**3.7**	**0.76**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**1.3**	**J**	**3.7**	**0.50**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.7	0.55	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.7	0.48	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.7	0.57	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**2.5**	**J**	**3.7**	**1.8**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		118	25-150
13C2_6:2FTS		87	25-150
13C2_8:2FTS		59	25-150
13C2_PFDoA		44	25-150
13C2_PFTeDA		39	25-150
13C3_PFBS		56	25-150
13C3_PFHxS		62	25-150
13C3-HFPO-DA		63	25-150
13C4_PFBA		39	25-150
13C4_PFHpA		68	25-150
13C5_PFHxA		64	25-150
13C5_PFPeA		67	25-150
13C6_PFDA		55	25-150
13C7_PFUdA		50	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
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S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21006-013**

Description: **MW-19-107_111924** Matrix: **Aqueous**

Date Sampled: **11/19/2024 1500** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/18/2024 1801	TAD	12/13/2024 1109	21259

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		67	25-150
13C8_PFOS		54	25-150
13C8_PFOSA		50	10-150
13C9_PFNA		63	25-150
d5-EtFOSAA		53	25-150
d3-MeFOSAA		55	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21006-014**

Description: **MW-18-99_112024** Matrix: **Aqueous**

Date Sampled: **11/20/2024 1210** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/18/2024 1811	TAD	12/13/2024 1109	21259

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.7	0.40	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.7	0.56	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.7	1.3	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		6.7	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	6.7	0.73	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.7	1.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.7	0.40	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.7	0.63	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.7	0.78	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**1.4**	**J**	**3.3**	**0.35**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.3	0.65	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	**375-92-8**	**PFAS by ID SOP**	**1.0**	**J**	**3.3**	**0.42**	**ng/L**	**1**
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.3	0.60	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.3	0.51	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.3	0.50	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**2.3**	**J**	**3.3**	**0.46**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**13**		**3.3**	**0.50**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	**335-76-2**	**PFAS by ID SOP**	**1.1**	**J**	**3.3**	**0.44**	**ng/L**	**1**
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.3	0.40	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**3.1**	**J**	**3.3**	**0.37**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**7.9**		**3.3**	**0.58**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**1.5**	**J**	**3.3**	**0.39**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**7.7**		**3.3**	**0.69**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**5.6**		**3.3**	**0.46**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.3	0.50	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.3	0.44	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.3	0.52	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**75**		**3.3**	**1.7**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	173	25-150
13C2_6:2FTS		112	25-150
13C2_8:2FTS		89	25-150
13C2_PFDoA		59	25-150
13C2_PFTeDA		49	25-150
13C3_PFBS		67	25-150
13C3_PFHxS		71	25-150
13C3-HFPO-DA		68	25-150
13C4_PFBA		54	25-150
13C4_PFHpA		71	25-150
13C5_PFHxA		70	25-150
13C5_PFPeA		71	25-150
13C6_PFDA		59	25-150
13C7_PFUdA		67	25-150

LOQ = Limit of Quantitation
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S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21006-014**

Description: **MW-18-99_112024** Matrix: **Aqueous**

Date Sampled: **11/20/2024 1210** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036.0370A**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/18/2024 1811	TAD	12/13/2024 1109	21259

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		71	25-150
13C8_PFOS		65	25-150
13C8_PFOSA		67	10-150
13C9_PFNA		74	25-150
d5-EtFOSAA		68	25-150
d3-MeFOSAA		74	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
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QC Summary

PFAS by LC/MS/MS - MB

Sample ID: ZQ21208-001
Batch: 21208
Analytical Method: PFAS by ID SOP
Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/12/2024 0956

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
9Cl-PF3ONS	ND		1	8.0	0.48	ng/L	12/14/2024 0111
11Cl-PF3OUdS	ND		1	8.0	0.66	ng/L	12/14/2024 0111
8:2 FTS	ND		1	8.0	1.6	ng/L	12/14/2024 0111
6:2 FTS	ND		1	8.0	2.0	ng/L	12/14/2024 0111
4:2 FTS	ND		1	8.0	0.87	ng/L	12/14/2024 0111
GenX	ND		1	8.0	2.1	ng/L	12/14/2024 0111
ADONA	ND		1	8.0	0.48	ng/L	12/14/2024 0111
EtFOSAA	ND		1	8.0	0.75	ng/L	12/14/2024 0111
MeFOSAA	ND		1	8.0	0.93	ng/L	12/14/2024 0111
PFBS	ND		1	4.0	0.41	ng/L	12/14/2024 0111
PFDS	ND		1	4.0	0.78	ng/L	12/14/2024 0111
PFHpS	ND		1	4.0	0.50	ng/L	12/14/2024 0111
PFNS	ND		1	4.0	0.71	ng/L	12/14/2024 0111
PFOSA	ND		1	4.0	0.61	ng/L	12/14/2024 0111
PFPeS	ND		1	4.0	0.59	ng/L	12/14/2024 0111
PFHxS	ND		1	4.0	0.55	ng/L	12/14/2024 0111
PFBA	ND		1	4.0	0.60	ng/L	12/14/2024 0111
PFDA	ND		1	4.0	0.52	ng/L	12/14/2024 0111
PFDoA	ND		1	4.0	0.47	ng/L	12/14/2024 0111
PFHpA	ND		1	4.0	0.45	ng/L	12/14/2024 0111
PFHxA	ND		1	4.0	0.69	ng/L	12/14/2024 0111
PFNA	ND		1	4.0	0.46	ng/L	12/14/2024 0111
PFOA	ND		1	4.0	0.83	ng/L	12/14/2024 0111
PFPeA	ND		1	4.0	0.54	ng/L	12/14/2024 0111
PFTeDA	ND		1	4.0	0.60	ng/L	12/14/2024 0111
PFTrDA	ND		1	4.0	0.53	ng/L	12/14/2024 0111
PFUdA	ND		1	4.0	0.63	ng/L	12/14/2024 0111
PFOS	ND		1	4.0	2.0	ng/L	12/14/2024 0111

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		96	25-150
13C2_6:2FTS		99	25-150
13C2_8:2FTS		85	25-150
13C2_PFDoA		74	25-150
13C2_PFTeDA		78	25-150
13C3_PFBS		78	25-150
13C3_PFHxS		81	25-150
13C3-HFPO-DA		89	25-150
13C4_PFBA		83	25-150
13C4_PFHpA		79	25-150
13C5_PFHxA		76	25-150
13C5_PFPeA		91	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: ZQ21208-001
Batch: 21208
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/12/2024 0956

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		82	25-150
13C7_PFUdA		79	25-150
13C8_PFOA		88	25-150
13C8_PFOS		87	25-150
13C8_PFOSA		79	10-150
13C9_PFNA		82	25-150
d5-EtFOSAA		82	25-150
d3-MeFOSAA		89	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ21208-002
Batch: 21208
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/12/2024 0956

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	7.5	8.3		1	111	50-150	12/14/2024 0121
11Cl-PF3OUdS	7.5	8.0		1	106	50-150	12/14/2024 0121
8:2 FTS	7.7	8.4		1	110	50-150	12/14/2024 0121
6:2 FTS	7.6	7.7		1	102	50-150	12/14/2024 0121
4:2 FTS	7.5	7.3		1	97	50-150	12/14/2024 0121
GenX	16	13		1	84	50-150	12/14/2024 0121
ADONA	7.5	7.5		1	99	50-150	12/14/2024 0121
EtFOSAA	8.0	7.6		1	95	50-150	12/14/2024 0121
MeFOSAA	8.0	8.0		1	100	50-150	12/14/2024 0121
PFBS	7.1	7.3		1	103	50-150	12/14/2024 0121
PFDS	7.7	8.1		1	105	50-150	12/14/2024 0121
PFHpS	7.6	7.3		1	96	50-150	12/14/2024 0121
PFNS	7.7	6.8		1	88	50-150	12/14/2024 0121
PFOSA	8.0	7.6		1	95	50-150	12/14/2024 0121
PFPeS	7.5	7.3		1	97	50-150	12/14/2024 0121
PFHxS	7.3	6.9		1	94	50-150	12/14/2024 0121
PFBA	8.0	7.9		1	99	50-150	12/14/2024 0121
PFDA	8.0	8.1		1	101	50-150	12/14/2024 0121
PFDoA	8.0	8.0		1	99	50-150	12/14/2024 0121
PFHpA	8.0	9.2		1	116	50-150	12/14/2024 0121
PFHxA	8.0	8.0		1	100	50-150	12/14/2024 0121
PFNA	8.0	8.2		1	102	50-150	12/14/2024 0121
PFOA	8.0	7.4		1	93	50-150	12/14/2024 0121
PFPeA	8.0	8.4		1	105	50-150	12/14/2024 0121
PFTeDA	8.0	8.4		1	105	50-150	12/14/2024 0121
PFTrDA	8.0	6.9		1	86	50-150	12/14/2024 0121
PFUdA	8.0	7.7		1	97	50-150	12/14/2024 0121
PFOS	7.4	7.6		1	102	50-150	12/14/2024 0121

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		93	25-150
13C2_6:2FTS		96	25-150
13C2_8:2FTS		92	25-150
13C2_PFDoA		85	25-150
13C2_PFTeDA		85	25-150
13C3_PFBS		85	25-150
13C3_PFHxS		97	25-150
13C3-HFPO-DA		108	25-150
13C4_PFBA		89	25-150
13C4_PFHpA		82	25-150
13C5_PFHxA		84	25-150
13C5_PFPeA		90	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ21208-002
Batch: 21208
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/12/2024 0956

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		84	25-150
13C7_PFUdA		85	25-150
13C8_PFOA		97	25-150
13C8_PFOS		85	25-150
13C8_PFOSA		80	10-150
13C9_PFNA		84	25-150
d5-EtFOSAA		93	25-150
d3-MeFOSAA		94	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID: ZK21006-003MS
Batch: 21208
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/12/2024 0956

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	ND	6.3	7.4		1	118	50-150	12/14/2024 0201
11Cl-PF3OUdS	ND	6.3	6.6		1	104	50-150	12/14/2024 0201
8:2 FTS	ND	6.5	7.7		1	119	50-150	12/14/2024 0201
6:2 FTS	ND	6.4	8.4		1	132	50-150	12/14/2024 0201
4:2 FTS	ND	6.3	5.7		1	91	50-150	12/14/2024 0201
GenX	ND	13	14		1	105	50-150	12/14/2024 0201
ADONA	ND	6.3	6.8		1	107	50-150	12/14/2024 0201
EtFOSAA	ND	6.7	7.7		1	115	50-150	12/14/2024 0201
MeFOSAA	ND	6.7	8.6		1	128	50-150	12/14/2024 0201
PFBS	2.0	6.0	8.4		1	108	50-150	12/14/2024 0201
PFDS	ND	6.5	6.9		1	106	50-150	12/14/2024 0201
PFHpS	3.8	6.4	10		1	104	50-150	12/14/2024 0201
PFNS	ND	6.5	6.5		1	101	50-150	12/14/2024 0201
PFOSA	ND	6.7	7.9		1	117	50-150	12/14/2024 0201
PFPeS	0.89	6.3	7.1		1	98	50-150	12/14/2024 0201
PFHxS	6.8	6.1	12		1	90	50-150	12/14/2024 0201
PFBA	8.6	6.7	17		1	126	50-150	12/14/2024 0201
PFDA	ND	6.7	8.9		1	132	50-150	12/14/2024 0201
PFDoA	ND	6.7	7.4		1	110	50-150	12/14/2024 0201
PFHpA	0.81	6.7	8.9		1	120	50-150	12/14/2024 0201
PFHxA	ND	6.7	8.6		1	128	50-150	12/14/2024 0201
PFNA	0.54	6.7	9.3		1	130	50-150	12/14/2024 0201
PFOA	9.7	6.7	18		1	119	50-150	12/14/2024 0201
PFPeA	ND	6.7	7.9		1	118	50-150	12/14/2024 0201
PFTeDA	ND	6.7	8.5		1	127	50-150	12/14/2024 0201
PFTrDA	ND	6.7	7.2		1	107	50-150	12/14/2024 0201
PFUdA	ND	6.7	8.3		1	123	50-150	12/14/2024 0201
PFOS	320	6.3	350	N	1	407	50-150	12/14/2024 0201

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS	N	243	25-150
13C2_6:2FTS		125	25-150
13C2_8:2FTS		94	25-150
13C2_PFDoA		70	25-150
13C2_PFTeDA		67	25-150
13C3_PFBS		82	25-150
13C3_PFHxS		83	25-150
13C3-HFPO-DA		87	25-150
13C4_PFBA		56	25-150
13C4_PFHpA		73	25-150
13C5_PFHxA		79	25-150
13C5_PFPeA		79	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID: ZK21006-003MS
Batch: 21208
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/12/2024 0956

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		76	25-150
13C7_PFUdA		73	25-150
13C8_PFOA		91	25-150
13C8_PFOS		76	25-150
13C8_PFOSA		72	10-150
13C9_PFNA		78	25-150
d5-EtFOSAA		76	25-150
d3-MeFOSAA		83	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MSD

Sample ID: ZK21006-003MD
Batch: 21208
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/12/2024 0956

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
9Cl-PF3ONS	ND	6.2	6.1		1	98	19	50-150	30	12/14/2024 0211
11Cl-PF3OUdS	ND	6.3	5.9		1	94	11	50-150	30	12/14/2024 0211
8:2 FTS	ND	6.4	5.7		1	90	29	50-150	30	12/14/2024 0211
6:2 FTS	ND	6.3	7.3		1	116	14	50-150	30	12/14/2024 0211
4:2 FTS	ND	6.2	6.2		1	99	8.3	50-150	30	12/14/2024 0211
GenX	ND	13	14		1	105	0.75	50-150	30	12/14/2024 0211
ADONA	ND	6.3	7.0		1	112	3.3	50-150	30	12/14/2024 0211
EtFOSAA	ND	6.7	7.4		1	110	5.0	50-150	30	12/14/2024 0211
MeFOSAA	ND	6.7	6.3	+	1	94	31	50-150	30	12/14/2024 0211
PFBS	2.0	5.9	7.9		1	99	6.9	50-150	30	12/14/2024 0211
PFDS	ND	6.4	6.0		1	94	13	50-150	30	12/14/2024 0211
PFHpS	3.8	6.4	9.3		1	85	13	50-150	30	12/14/2024 0211
PFNS	ND	6.4	5.9		1	92	9.8	50-150	30	12/14/2024 0211
PFOSA	ND	6.7	7.2		1	108	9.3	50-150	30	12/14/2024 0211
PFPeS	0.89	6.3	7.6		1	108	7.2	50-150	30	12/14/2024 0211
PFHxS	6.8	6.1	13		1	96	2.5	50-150	30	12/14/2024 0211
PFBA	8.6	6.7	15		1	98	12	50-150	30	12/14/2024 0211
PFDA	ND	6.7	7.2		1	108	21	50-150	30	12/14/2024 0211
PFDoA	ND	6.7	7.4		1	111	0.43	50-150	30	12/14/2024 0211
PFHpA	0.81	6.7	7.9		1	105	12	50-150	30	12/14/2024 0211
PFHxA	ND	6.7	7.9		1	119	8.4	50-150	30	12/14/2024 0211
PFNA	0.54	6.7	7.5		1	105	21	50-150	30	12/14/2024 0211
PFOA	9.7	6.7	16		1	99	8.0	50-150	30	12/14/2024 0211
PFPeA	ND	6.7	7.1		1	106	11	50-150	30	12/14/2024 0211
PFTeDA	ND	6.7	7.7		1	115	10	50-150	30	12/14/2024 0211
PFTrDA	ND	6.7	7.1		1	107	0.25	50-150	30	12/14/2024 0211
PFUdA	ND	6.7	6.8		1	101	20	50-150	30	12/14/2024 0211
PFOS	320	6.2	310	N	1	-164	11	50-150	30	12/14/2024 0211

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS	N	215	25-150
13C2_6:2FTS		139	25-150
13C2_8:2FTS		95	25-150
13C2_PFDoA		62	25-150
13C2_PFTeDA		61	25-150
13C3_PFBS		76	25-150
13C3_PFHxS		77	25-150
13C3-HFPO-DA		76	25-150
13C4_PFBA		56	25-150
13C4_PFHpA		72	25-150
13C5_PFHxA		77	25-150
13C5_PFPeA		79	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MSD

Sample ID: ZK21006-003MD
Batch: 21208
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/12/2024 0956

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		78	25-150
13C7_PFUdA		68	25-150
13C8_PFOA		81	25-150
13C8_PFOS		75	25-150
13C8_PFOSA		68	10-150
13C9_PFNA		75	25-150
d5-EtFOSAA		66	25-150
d3-MeFOSAA		74	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: ZQ21259-001
Batch: 21259
Analytical Method: PFAS by ID SOP
Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/13/2024 1109

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
9Cl-PF3ONS	ND		1	8.0	0.48	ng/L	12/18/2024 1710
11Cl-PF3OUdS	ND		1	8.0	0.66	ng/L	12/18/2024 1710
8:2 FTS	ND		1	8.0	1.6	ng/L	12/18/2024 1710
6:2 FTS	ND		1	8.0	2.0	ng/L	12/18/2024 1710
4:2 FTS	ND		1	8.0	0.87	ng/L	12/18/2024 1710
GenX	ND		1	8.0	2.1	ng/L	12/18/2024 1710
ADONA	ND		1	8.0	0.48	ng/L	12/18/2024 1710
EtFOSAA	ND		1	8.0	0.75	ng/L	12/18/2024 1710
MeFOSAA	ND		1	8.0	0.93	ng/L	12/18/2024 1710
PFBS	ND		1	4.0	0.41	ng/L	12/18/2024 1710
PFDS	ND		1	4.0	0.78	ng/L	12/18/2024 1710
PFHpS	ND		1	4.0	0.50	ng/L	12/18/2024 1710
PFNS	ND		1	4.0	0.71	ng/L	12/18/2024 1710
PFOSA	ND		1	4.0	0.61	ng/L	12/18/2024 1710
PFPeS	ND		1	4.0	0.59	ng/L	12/18/2024 1710
PFHxS	ND		1	4.0	0.55	ng/L	12/18/2024 1710
PFBA	ND		1	4.0	0.60	ng/L	12/18/2024 1710
PFDA	ND		1	4.0	0.52	ng/L	12/18/2024 1710
PFDoA	ND		1	4.0	0.47	ng/L	12/18/2024 1710
PFHpA	ND		1	4.0	0.45	ng/L	12/18/2024 1710
PFHxA	ND		1	4.0	0.69	ng/L	12/18/2024 1710
PFNA	ND		1	4.0	0.46	ng/L	12/18/2024 1710
PFOA	ND		1	4.0	0.83	ng/L	12/18/2024 1710
PFPeA	ND		1	4.0	0.54	ng/L	12/18/2024 1710
PFTeDA	ND		1	4.0	0.60	ng/L	12/18/2024 1710
PFTrDA	ND		1	4.0	0.53	ng/L	12/18/2024 1710
PFUdA	ND		1	4.0	0.63	ng/L	12/18/2024 1710
PFOS	ND		1	4.0	2.0	ng/L	12/18/2024 1710

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		76	25-150
13C2_6:2FTS		83	25-150
13C2_8:2FTS		76	25-150
13C2_PFDoA		67	25-150
13C2_PFTeDA		63	25-150
13C3_PFBS		67	25-150
13C3_PFHxS		67	25-150
13C3-HFPO-DA		69	25-150
13C4_PFBA		71	25-150
13C4_PFHpA		79	25-150
13C5_PFHxA		68	25-150
13C5_PFPeA		75	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: ZQ21259-001
Batch: 21259
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/13/2024 1109

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		67	25-150
13C7_PFUdA		60	25-150
13C8_PFOA		70	25-150
13C8_PFOS		70	25-150
13C8_PFOSA		55	10-150
13C9_PFNA		71	25-150
d5-EtFOSAA		69	25-150
d3-MeFOSAA		71	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ21259-002
Batch: 21259
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/13/2024 1109

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	7.5	7.6		1	102	50-150	12/18/2024 1721
11Cl-PF3OUdS	7.5	6.8		1	90	50-150	12/18/2024 1721
8:2 FTS	7.7	7.6		1	99	50-150	12/18/2024 1721
6:2 FTS	7.6	6.5		1	86	50-150	12/18/2024 1721
4:2 FTS	7.5	7.4		1	99	50-150	12/18/2024 1721
GenX	16	13		1	80	50-150	12/18/2024 1721
ADONA	7.5	7.5		1	100	50-150	12/18/2024 1721
EtFOSAA	8.0	6.9		1	86	50-150	12/18/2024 1721
MeFOSAA	8.0	7.9		1	99	50-150	12/18/2024 1721
PFBS	7.1	6.9		1	97	50-150	12/18/2024 1721
PFDS	7.7	7.3		1	95	50-150	12/18/2024 1721
PFHpS	7.6	7.3		1	97	50-150	12/18/2024 1721
PFNS	7.7	6.8		1	88	50-150	12/18/2024 1721
PFOSA	8.0	7.4		1	92	50-150	12/18/2024 1721
PFPeS	7.5	7.3		1	98	50-150	12/18/2024 1721
PFHxS	7.3	7.0		1	96	50-150	12/18/2024 1721
PFBA	8.0	8.1		1	101	50-150	12/18/2024 1721
PFDA	8.0	8.5		1	107	50-150	12/18/2024 1721
PFDoA	8.0	8.0		1	100	50-150	12/18/2024 1721
PFHpA	8.0	7.8		1	98	50-150	12/18/2024 1721
PFHxA	8.0	7.6		1	95	50-150	12/18/2024 1721
PFNA	8.0	8.0		1	100	50-150	12/18/2024 1721
PFOA	8.0	8.5		1	106	50-150	12/18/2024 1721
PFPeA	8.0	8.3		1	104	50-150	12/18/2024 1721
PFTeDA	8.0	8.7		1	108	50-150	12/18/2024 1721
PFTrDA	8.0	6.6		1	83	50-150	12/18/2024 1721
PFUdA	8.0	8.5		1	106	50-150	12/18/2024 1721
PFOS	7.4	8.6		1	116	50-150	12/18/2024 1721

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		93	25-150
13C2_6:2FTS		95	25-150
13C2_8:2FTS		86	25-150
13C2_PFDoA		75	25-150
13C2_PFTeDA		66	25-150
13C3_PFBS		83	25-150
13C3_PFHxS		84	25-150
13C3-HFPO-DA		94	25-150
13C4_PFBA		80	25-150
13C4_PFHpA		87	25-150
13C5_PFHxA		78	25-150
13C5_PFPeA		81	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ21259-002
Batch: 21259
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/13/2024 1109

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		69	25-150
13C7_PFUdA		74	25-150
13C8_PFOA		82	25-150
13C8_PFOS		75	25-150
13C8_PFOSA		69	10-150
13C9_PFNA		83	25-150
d5-EtFOSAA		83	25-150
d3-MeFOSAA		82	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID: ZK21006-012MS
Batch: 21259
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/13/2024 1109

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	ND	37	44		1	118	50-150	12/18/2024 1741
11Cl-PF3OUdS	ND	38	40		1	106	50-150	12/18/2024 1741
8:2 FTS	ND	38	40		1	105	50-150	12/18/2024 1741
6:2 FTS	ND	38	33		1	87	50-150	12/18/2024 1741
4:2 FTS	ND	37	40		1	108	50-150	12/18/2024 1741
GenX	ND	80	71		1	89	50-150	12/18/2024 1741
ADONA	ND	38	45		1	120	50-150	12/18/2024 1741
EtFOSAA	ND	40	40		1	99	50-150	12/18/2024 1741
MeFOSAA	ND	40	33		1	83	50-150	12/18/2024 1741
PFBS	2.5	35	37		1	98	50-150	12/18/2024 1741
PFDS	ND	39	43		1	112	50-150	12/18/2024 1741
PFHpS	ND	38	42		1	111	50-150	12/18/2024 1741
PFNS	ND	38	41		1	106	50-150	12/18/2024 1741
PFOSA	ND	40	46		1	115	50-150	12/18/2024 1741
PFPeS	ND	38	45		1	120	50-150	12/18/2024 1741
PFHxS	ND	36	45		1	118	50-150	12/18/2024 1741
PFBA	ND	40	45		1	107	50-150	12/18/2024 1741
PFDA	ND	40	48		1	121	50-150	12/18/2024 1741
PFDoA	ND	40	44		1	111	50-150	12/18/2024 1741
PFHpA	ND	40	47		1	118	50-150	12/18/2024 1741
PFHxA	ND	40	48		1	120	50-150	12/18/2024 1741
PFNA	ND	40	44		1	110	50-150	12/18/2024 1741
PFOA	ND	40	50		1	124	50-150	12/18/2024 1741
PFPeA	ND	40	43		1	107	50-150	12/18/2024 1741
PFTeDA	ND	40	43		1	109	50-150	12/18/2024 1741
PFTrDA	ND	40	36		1	90	50-150	12/18/2024 1741
PFUdA	ND	40	49		1	122	50-150	12/18/2024 1741
PFOS	ND	37	46		1	117	50-150	12/18/2024 1741

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		102	25-150
13C2_6:2FTS		107	25-150
13C2_8:2FTS		82	25-150
13C2_PFDoA		70	25-150
13C2_PFTeDA		70	25-150
13C3_PFBS		75	25-150
13C3_PFHxS		76	25-150
13C3-HFPO-DA		84	25-150
13C4_PFBA		80	25-150
13C4_PFHpA		80	25-150
13C5_PFHxA		77	25-150
13C5_PFPeA		84	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID: ZK21006-012MS
Batch: 21259
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/13/2024 1109

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		67	25-150
13C7_PFUdA		70	25-150
13C8_PFOA		84	25-150
13C8_PFOS		71	25-150
13C8_PFOSA		69	10-150
13C9_PFNA		79	25-150
d5-EtFOSAA		84	25-150
d3-MeFOSAA		88	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MSD

Sample ID: ZK21006-012MD
Batch: 21259
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/13/2024 1109

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
9Cl-PF3ONS	ND	37	43		1	114	3.0	50-150	30	12/18/2024 1751
11Cl-PF3OUdS	ND	38	43		1	115	8.1	50-150	30	12/18/2024 1751
8:2 FTS	ND	38	40		1	105	0.30	50-150	30	12/18/2024 1751
6:2 FTS	ND	38	40		1	105	19	50-150	30	12/18/2024 1751
4:2 FTS	ND	37	35		1	94	14	50-150	30	12/18/2024 1751
GenX	ND	80	89		1	112	23	50-150	30	12/18/2024 1751
ADONA	ND	38	44		1	117	2.1	50-150	30	12/18/2024 1751
EtFOSAA	ND	40	39		1	98	1.5	50-150	30	12/18/2024 1751
MeFOSAA	ND	40	45		1	112	29	50-150	30	12/18/2024 1751
PFBS	2.5	35	38		1	99	1.3	50-150	30	12/18/2024 1751
PFDS	ND	39	45		1	116	3.6	50-150	30	12/18/2024 1751
PFHpS	ND	38	44		1	116	4.3	50-150	30	12/18/2024 1751
PFNS	ND	38	43		1	113	5.8	50-150	30	12/18/2024 1751
PFOSA	ND	40	45		1	113	2.1	50-150	30	12/18/2024 1751
PFPeS	ND	38	44		1	118	1.7	50-150	30	12/18/2024 1751
PFHxS	ND	36	39		1	104	13	50-150	30	12/18/2024 1751
PFBA	ND	40	45		1	109	1.8	50-150	30	12/18/2024 1751
PFDA	ND	40	39		1	98	21	50-150	30	12/18/2024 1751
PFDoA	ND	40	49		1	122	9.6	50-150	30	12/18/2024 1751
PFHpA	ND	40	43		1	107	10	50-150	30	12/18/2024 1751
PFHxA	ND	40	46		1	116	3.4	50-150	30	12/18/2024 1751
PFNA	ND	40	47		1	118	7.4	50-150	30	12/18/2024 1751
PFOA	ND	40	47		1	117	6.4	50-150	30	12/18/2024 1751
PFPeA	ND	40	43		1	108	1.2	50-150	30	12/18/2024 1751
PFTeDA	ND	40	45		1	112	2.9	50-150	30	12/18/2024 1751
PFTrDA	ND	40	42		1	105	16	50-150	30	12/18/2024 1751
PFUdA	ND	40	46		1	115	5.4	50-150	30	12/18/2024 1751
PFOS	ND	37	47		1	118	1.2	50-150	30	12/18/2024 1751

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		123	25-150
13C2_6:2FTS		104	25-150
13C2_8:2FTS		90	25-150
13C2_PFDoA		73	25-150
13C2_PFTeDA		74	25-150
13C3_PFBS		84	25-150
13C3_PFHxS		81	25-150
13C3-HFPO-DA		80	25-150
13C4_PFBA		76	25-150
13C4_PFHpA		90	25-150
13C5_PFHxA		82	25-150
13C5_PFPeA		86	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MSD

Sample ID: ZK21006-012MD
Batch: 21259
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/13/2024 1109

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		75	25-150
13C7_PFUdA		66	25-150
13C8_PFOA		85	25-150
13C8_PFOS		74	25-150
13C8_PFOSA		70	10-150
13C9_PFNA		85	25-150
d5-EtFOSAA		78	25-150
d3-MeFOSAA		79	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Chain of Custody
and
Miscellaneous Documents

Pace Analytical® **Chain of Custody Record**

Pace Analytical Services, LLC.
106 Vantage Point Drive
West Columbia, South Carolina 29172
Telephone No. (803) 791-9700 Fax No. (803) 791-9111
www.pacelabs.com

Number PLANT-3

Client: Arcadis	Report to Contact: Tiffany Linder, Kaitlyn Hunt	Telephone No. / E-mail: (248)609 4012/ kaitlyn.hunt@arcadis.com
Address: 28550 Cabot Drive, Suite 500	Sampler's Signature: X	Quote No.
City: Novi / State: MI / Zip Code: 48377	Printed Name: Billy J. Cabeaw	Analysis (Attach list if more space is needed)
Project Name: RACER Lansing GWS		Page: ZK21006
Project Number: 30171056.0370A 30214636.0370A	P.O. No.: US3460310148	KES2

Sample ID / Description (Containers for each sample may be combined on one line)	Collection Date(s)	Collection Time (military)	G=Grab C=Composite	Matrix: Aqueous	Solid	Non-Aqueous	No of Containers by Preservative Type: Unpres.	H2SO4	HNO3	HCl	NaOH	5035 Kit	Field Filtered	PFAS (Method 537M ECLE 28 compounds)	Remarks / Cooler I.D.
EB-03_111824	11/18/24	0940	G	X			2							2	
MW-18-101_111824	11/18/24	1045	G	X			2							2	
~~AS-19-06_111824~~															
MW-18-88_111924	11/19/24	1125	G	X			6							6	MS/MSD
MW-18-95_111924	11/19/24	1255	G	X			2							2	
MW-18-98_111924	11/19/24	1405	G	X			2							2	
EB-05_112024	11/20/24	0825	G	X			2							2	
MW-18-105_112024	11/20/24	0920	G	X			2							2	
DUP-03_112024	11/20/24	—	G	X			2							2	
MW-18-100_112024	11/20/24	1050	G	X			2							2	

Turn Around Time Required (Prior lab approval required for expedited TAT): ☐ Standard ☐ Rush (Please Specify)

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab

Possible Hazard Identification (List any known hazards in the remarks): ☐ Non-Hazardous ☐ Flammable ☐ Skin Irritant ☐ SDS required ☐ Unknown

QC Requirements

	Date	Time
1. Relinquished by	11-20-24	1530
2. Relinquished by		
3. Relinquished by		
4. Relinquished by	11-21-24	940

	Date	Time
1. Received by		
2. Received by		
3. Received by		
4. Laboratory Received by	11-21-24	940

Note: All samples are retained for four weeks from receipt unless other arrangements are made

LAB USE ONLY — Received on Ice (Check) ☑ Y ☐ N ☐ Ice Pack — Receipt Temp. 19.3 °C — Temp. Blank ☑ Y / ☐ N

Pace®

CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here

ZK21006

Scan QR Code for instructions

Company Name:	Arcadis
Street Address:	28550 Cabot Dr. Suite 500
Customer Project #:	30214036.03708
Project Name:	Rogers Landfill - Plant 3
Site Collection Info/Facility ID (as applicable):	Plant 3
Time Zone Collected:	[ ] AK [ ] PT [ ] MT [ ] CT [ ] ET
Data Deliverables:	[ ] Level II [ ] Level III [ ] Level IV [ ] TRRP [ ] Other EDD
Regulatory Program: (DW, NPDES, RCRA, etc.) as applicable:	Reportable [ ] Yes [ ] No
Turn Around Data Results Requested:	Rush (Pre-approval required): [ ] Same Day [ ] 1 Day [ ] 2 Day [ ] 3 Day [ ] Other Standard
DW PWSID # or WW Permit # as applicable:	Field Filtered (if applicable): [ ] Yes [ ] No
Analysis:	

Contact/Report To: Tiffany Linder, Keith Hartman

Phone #: 947-777-5215

E-Mail: Keithhartman@arcadis.com

cc E-Mail: Tiffany.linder@arcadis.com

Invoice To:

Invoice E-Mail:

Purchase Order # (if applicable):

Quote #:

Specify Container Size **: 250mL

Identify Container Preservative Type***: 1

Analysis Requested: PFAS-DSM-Table B-15

Preservation Non-conformance upon receipt: Yes / No

Sample Comment

Date: 22May24
Wgt: 20.00 LBS

DV:

0.00

SHIPPING: 0.00
SPECIAL: 0.00
MINOR TMS: 0.00
TOTAL: 0.00

Ship: STANDARD OVERNIGHT NSR PRE Tracking: 7219 4734 0995
INIT: 7219 4734 0995

Customer Sample ID	Matrix *	Comp / Grab	Composite Start Date	Composite Start Time	Collected or Composite End Date	Collected or Composite End Time	# Cont.	Res. Chlorine Results	Res. Chlorine Units
UNK-15_111924	GW	G	11/19/24	1030	11/19/24	1030	2		
MW-19-111_111924	GW	G	11/19/24	1205	11/19/24	1205	2		
MW-19-108_111924	GW	G	11/19/24	1335	11/19/24	1335	2		
MW-19-107_111924	GW	G	11/18/24	1500	11/18/24	1500	2		
MW-22-1524									
MW-18-99_112024	GW	G	11/20/24	1210	11/20/24	1210	2		

Ref:
Dep:

Additional Instructions from Pace®:

Collected By: (Printed Name)

Signature:

Customer Remarks / Special Conditions / Possible Hazards:

Relinquished by/Company: (Signature) — Date/Time: 11-20-24 1532 — Received by/Company: (Signature) — Arcadis — Date/Time:

Relinquished by/Company: (Signature) — Date/Time: — Received by/Company: (Signature) — Date/Time:

Relinquished by/Company: (Signature) — Date/Time: — Received by/Company: (Signature) — Date/Time:

Relinquished by/Company: (Signature) — Date/Time: — Received by/Company: (Signature) — Date/Time:

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace® Terms and Conditions found at https://www.pacelabs.com/resource-library/resource/pace-terms-and-conditions/

Pages: of

ENV-FRM-CORO-0019_v02_101216

DC#_Title: ENV-FRM-WCOL-0286 v02_Samples Receipt Checklist (SRC)
Effective Date: 8/2/2022

Sample Receipt Checklist (SRC)

Client: Arcadis Cooler Inspected by/date: KDRW / 11/21/2024 Lot #: 7K21006

Means of receipt: ☐ Pace ☐ Client ☐ UPS ☑ FedEx ☐ Other:

☐ Yes	☑ No		1. Were custody seals present on the cooler?
☐ Yes	☐ No	☑ NA	2. If custody seals were present, were they intact and unbroken?

pH Strip ID: NA Chlorine Strip ID: NA Tested by: NA

Original temperature upon receipt / Derived (Corrected) temperature upon receipt: 1.9/1.9 °C 3.1/3.1 °C NA /NA °C NA /NA °C %Solid Snap-Cup ID: NA

Method: ☐ Temperature Blank ☐ Against Bottles IR Gun ID: 8 IR Gun Correction Factor: 0 °C

Method of coolant: ☑ Wet Ice ☐ Ice Packs ☐ Dry Ice ☐ None

☐ Yes	☐ No	☐ NA	3. Were all coolers received at or below 6.0°C? If no, was Project Manager notified? PM was Notified by: phone / email / face-to-face (circle one).
☑ Yes	☐ No	☐ NA	4. Is the commercial courier's packing slip attached to this form?
☑ Yes	☐ No		5. Were proper custody procedures (relinquished/received) followed?
☑ Yes	☐ No		6. Were sample IDs listed on the COC and all sample containers?
☑ Yes	☐ No		7. Was collection date & time listed on the COC and all sample containers?
☑ Yes	☐ No		8. Did all container label information (ID, date, time) agree with the COC?
☑ Yes	☐ No		9. Were tests to be performed listed on the COC?
☑ Yes	☐ No		10. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)?
☑ Yes	☐ No		11. Was adequate sample volume available?
☑ Yes	☐ No		12. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
☑ Yes	☐ No		13. Were all samples containers accounted for? (No missing/excess)
☐ Yes	☐ No	☑ NA	14. Were VOA, 8015C and RSK-175 samples free of bubbles >"pea-size" (¼"or 6mm in diameter) in any of the VOA vials?
☐ Yes	☐ No	☑ NA	15. Were all DRO/metals/nutrient samples received at a pH of < 2?
☐ Yes	☐ No	☑ NA	16. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
☐ Yes	☐ No	☑ NA	17. Were all applicable NH_3/TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?
☑ Yes	☐ No	☐ NA	18. Was the quote number listed on the container label? If yes, Quote # 25304

Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)

Sample(s) NA were received incorrectly preserved and were adjusted accordingly in sample receiving with NA mL of circle one: H_2SO_4, HNO_3, HCl, NaOH using SR # NA. Time of preservation NA. If more than one preservative is needed, please note in the comments below.

Sample(s) NA were received with bubbles >6 mm in diameter.

Samples(s) NA were received with TRC > 0.5 mg/L (If #19 is *no*) and were adjusted accordingly in sample receiving with sodium thiosulfate ($Na_2S_2O_3$) with Unique ID: NA.

Comments:

Qualtrax ID: 56360

Pace® Analytical Services, LLC

Page 1 of 1

Report of Analysis

Arcadis, US. Inc.
630 Plaza Drive
Suite 200
Highlands Ranch, CO 80129
Attention: Tiffany Linder

Project Name: RACER Lansing GWS

Project Number: 30214036

Lot Number:**ZK21007**

Date Completed:12/31/2024

12/31/2024 1:44 PM
Approved and released by:
Project Manager II: **Kathy E. Smith**





The electronic signature above is the equivalent of a handwritten signature.
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Pace Analytical Services, LLC (*formerly Shealy Environmental Services, Inc.*)
106 Vantage Point Drive West Columbia, SC 29172
Tel: 803-791-9700 Fax: 803-791-9111 www.pacelabs.com

Case Narrative
Arcadis, US. Inc.
Lot Number: ZK21007

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.
Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved The NELAC Institute (TNI) standards, the Pace Analytical Services, LLC ("Pace") Laboratory Quality Manual, standard operating procedures (SOPs), and Pace policies. Additionally, the DoD QSM version 5.4 has been followed for these samples, and specifically Table B-15 was followed for all PFAS samples. Any exceptions to the TNI standards, the Laboratory Quality Manual, SOPs, the DoD QSM, or policies are qualified on the results page or discussed below.

All QC associated with these samples were compliant with DOD QSM 5.4 table B-15 and our PFAS SOP. Correction factors (CF) are used to calculate the original sample concentration. The CF is the inverse of the concentration factor (sample volume / extract final volume) times the dilution factor (DF). The CF is calculated as follows:

CF = DF * FV / Vo
FV is volume of extract (mL)
Vo is initial sample volume (mL)
DF is dilution factor. For undiluted analysis, DF = 1.

Sample concentration for aqueous samples:
Concentration (ng/L) = Cs*CF,

$$C_s = \frac{\left(\frac{(A_s x C_{is})}{A_{is}}\right) - B}{M1}$$

Where

C_s is on column concentration of target analyte in the sample (ng/L)
C_{is} is concentration of internal standard in the sample (ng/L)
A_s is peak response of target analyte in the sample
A_{is} is peak response of internal standard in the sample
M1 is the average RF from ICAL or the slope from linear regression ICAL
B is the y-intercept from the ICAL

Pace is a TNI accredited laboratory; however, the following analyses are currently not listed on our TNI scope of accreditation: E. coli and Total coliforms SM 9223 B-2004, Solid Chemical Material: TOC Walkley-Black, Biological Tissue: All, Non-Potable Water: SGT-HEM EPA 1664B, Silica EPA 200.7, Boron, Calcium, Silicon, Strontium EPA 200.8, Bicarbonate, Carbonate, and Hydroxide Alkalinity SM 2320 B-2011, SM 9221 C E-2006 & SM 9222D-2006, Strontium SW-846 6010D, VOC SM 6200 B-2011, Fecal Coliform Colilert-18. If you have any questions regarding this report, please contact the Pace Project Manager listed on the cover page.

Manual integration summaries are provided at the end of this report when applicable.

PFAS
The following samples were diluted due to the nature of the sample matrix: ZK21007-009, ZK21007-021, ZK21007-024. The LOQ has been elevated to reflect the dilution.The samples were dark in color.

For sample ZK21007-013 the sample matrix prevented full volume from being extracted, precluding method mandated bottle rinse. Elution solvent was aliquoted directly into the reservoir, rinsing the inside. Surrogate recovery may be adversely affected.

Surrogate recovery for the following samples was outside the upper control limit: ZK21007-005, ZK21007-007, ZK21007-010, ZK21007-011, ZK21007-014, ZK21007-015, ZK21007-017, ZK21007-019, ZK21007-020, ZK21007-021. These samples did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

Surrogate recovery for the following samples was outside control limits: ZK21007-006, ZK21007-018. Re-extraction and/or re-analysis was performed outside of holding time and all data has been reported.

Sample Summary

Arcadis, US. Inc.

Lot Number: ZK21007

Project Name: RACER Lansing GWS

Project Number: 30214036

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	MW-22-145_111324	Aqueous	11/13/2024 1125	11/21/2024
002	MW-22-144_111324	Aqueous	11/13/2024 1235	11/21/2024
003	MW-22-158_111324	Aqueous	11/13/2024 1435	11/21/2024
004	MW-22-160_111324	Aqueous	11/13/2024 1600	11/21/2024
005	MW-12-12_111424	Aqueous	11/14/2024 1000	11/21/2024
006	MW-13-36R_111424	Aqueous	11/14/2024 1125	11/21/2024
007	MW-22-147_111424	Aqueous	11/14/2024 1255	11/21/2024
008	MW-22-148_111424	Aqueous	11/14/2024 1415	11/21/2024
009	MW-22-143_111524	Aqueous	11/15/2024 1005	11/21/2024
010	DUP-08_111424	Aqueous	11/14/2024	11/21/2024
011	MW-22-146_111524	Aqueous	11/15/2024 1125	11/21/2024
012	MW-22-149_111524	Aqueous	11/15/2024 1225	11/21/2024
013	EB-01_111524	Aqueous	11/15/2024 1315	11/21/2024
014	MW-21-133_111824	Aqueous	11/18/2024 1210	11/21/2024
015	DUP-06_111824	Aqueous	11/18/2024	11/21/2024
016	MW-21-134_111824	Aqueous	11/18/2024 1310	11/21/2024
017	MW-12-13_111824	Aqueous	11/18/2024 1505	11/21/2024
018	MW-20-131_111924	Aqueous	11/19/2024 1055	11/21/2024
019	MW-20-132_111924	Aqueous	11/19/2024 1205	11/21/2024
020	MW-22-150_111924	Aqueous	11/19/2024 1345	11/21/2024
021	MW-22-151_111924	Aqueous	11/19/2024 1500	11/21/2024
022	EB-04_111924	Aqueous	11/19/2024 1545	11/21/2024
023	MW-22-152_112024	Aqueous	11/20/2024 1130	11/21/2024
024	DUP-09_112024	Aqueous	11/20/2024	11/21/2024

(24 samples)

Detection Summary

Arcadis, US. Inc.

Lot Number: ZK21007

Project Name: RACER Lansing GWS

Project Number: 30214036

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	MW-22-145_111324	Aqueous	PFBS	PFAS by ID	2.5	J	ng/L	10
001	MW-22-145_111324	Aqueous	PFPeS	PFAS by ID	0.78	J	ng/L	10
001	MW-22-145_111324	Aqueous	PFHxS	PFAS by ID	4.1		ng/L	10
001	MW-22-145_111324	Aqueous	PFBA	PFAS by ID	8.7		ng/L	10
001	MW-22-145_111324	Aqueous	PFHpA	PFAS by ID	11		ng/L	10
001	MW-22-145_111324	Aqueous	PFHxA	PFAS by ID	20		ng/L	10
001	MW-22-145_111324	Aqueous	PFOA	PFAS by ID	22		ng/L	10
001	MW-22-145_111324	Aqueous	PFPeA	PFAS by ID	16		ng/L	10
002	MW-22-144_111324	Aqueous	PFBS	PFAS by ID	3.2	J	ng/L	12
002	MW-22-144_111324	Aqueous	PFHxS	PFAS by ID	10		ng/L	12
002	MW-22-144_111324	Aqueous	PFBA	PFAS by ID	5.6		ng/L	12
002	MW-22-144_111324	Aqueous	PFHpA	PFAS by ID	5.5		ng/L	12
002	MW-22-144_111324	Aqueous	PFHxA	PFAS by ID	9.6		ng/L	12
002	MW-22-144_111324	Aqueous	PFOA	PFAS by ID	11		ng/L	12
002	MW-22-144_111324	Aqueous	PFPeA	PFAS by ID	8.4		ng/L	12
002	MW-22-144_111324	Aqueous	PFOS	PFAS by ID	2.3	J	ng/L	12
003	MW-22-158_111324	Aqueous	PFBS	PFAS by ID	1.8	J	ng/L	14
003	MW-22-158_111324	Aqueous	PFBA	PFAS by ID	5.5		ng/L	14
003	MW-22-158_111324	Aqueous	PFHpA	PFAS by ID	1.2	J	ng/L	14
003	MW-22-158_111324	Aqueous	PFHxA	PFAS by ID	2.9	J	ng/L	14
003	MW-22-158_111324	Aqueous	PFOA	PFAS by ID	1.3	J	ng/L	14
003	MW-22-158_111324	Aqueous	PFPeA	PFAS by ID	2.8	J	ng/L	14
004	MW-22-160_111324	Aqueous	PFBA	PFAS by ID	1.3	J	ng/L	16
005	MW-12-12_111424	Aqueous	PFBS	PFAS by ID	2.5	J	ng/L	18
005	MW-12-12_111424	Aqueous	PFHxS	PFAS by ID	2.4	J	ng/L	18
005	MW-12-12_111424	Aqueous	PFBA	PFAS by ID	63		ng/L	18
005	MW-12-12_111424	Aqueous	PFDA	PFAS by ID	9.6		ng/L	18
005	MW-12-12_111424	Aqueous	PFHpA	PFAS by ID	70		ng/L	18
005	MW-12-12_111424	Aqueous	PFHxA	PFAS by ID	170		ng/L	18
005	MW-12-12_111424	Aqueous	PFNA	PFAS by ID	6.7		ng/L	18
005	MW-12-12_111424	Aqueous	PFOA	PFAS by ID	150		ng/L	18
005	MW-12-12_111424	Aqueous	PFPeA	PFAS by ID	100		ng/L	18
005	MW-12-12_111424	Aqueous	PFOS	PFAS by ID	24		ng/L	18
006	MW-13-36R_111424	Aqueous	EtFOSAA	PFAS by ID	5.4	J	ng/L	20
006	MW-13-36R_111424	Aqueous	PFBS	PFAS by ID	2.6	J	ng/L	20
006	MW-13-36R_111424	Aqueous	PFHpS	PFAS by ID	0.61	J	ng/L	20
006	MW-13-36R_111424	Aqueous	PFOSA	PFAS by ID	3.6	J	ng/L	20
006	MW-13-36R_111424	Aqueous	PFHxS	PFAS by ID	2.0	J	ng/L	20
006	MW-13-36R_111424	Aqueous	PFDA	PFAS by ID	24		ng/L	20
006	MW-13-36R_111424	Aqueous	PFDoA	PFAS by ID	0.50	J	ng/L	20
006	MW-13-36R_111424	Aqueous	PFHpA	PFAS by ID	29		ng/L	20
006	MW-13-36R_111424	Aqueous	PFHxA	PFAS by ID	34		ng/L	20
006	MW-13-36R_111424	Aqueous	PFNA	PFAS by ID	13		ng/L	20

Detection Summary (Continued)

Lot Number: ZK21007

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
006	MW-13-36R_111424	Aqueous	PFOA	PFAS by ID	63		ng/L	20
006	MW-13-36R_111424	Aqueous	PFPeA	PFAS by ID	30		ng/L	20
006	MW-13-36R_111424	Aqueous	PFUdA	PFAS by ID	0.76	J	ng/L	20
006	MW-13-36R_111424	Aqueous	PFOS	PFAS by ID	46		ng/L	20
007	MW-22-147_111424	Aqueous	PFBS	PFAS by ID	3.6	J	ng/L	24
007	MW-22-147_111424	Aqueous	PFHxS	PFAS by ID	2.6	J	ng/L	24
007	MW-22-147_111424	Aqueous	PFBA	PFAS by ID	6.6		ng/L	24
007	MW-22-147_111424	Aqueous	PFHpA	PFAS by ID	1.6	J	ng/L	24
007	MW-22-147_111424	Aqueous	PFHxA	PFAS by ID	3.3	J	ng/L	24
007	MW-22-147_111424	Aqueous	PFOA	PFAS by ID	7.3		ng/L	24
007	MW-22-147_111424	Aqueous	PFPeA	PFAS by ID	3.4	J	ng/L	24
007	MW-22-147_111424	Aqueous	PFOS	PFAS by ID	3.3	J	ng/L	24
008	MW-22-148_111424	Aqueous	PFBS	PFAS by ID	2.2	J	ng/L	26
008	MW-22-148_111424	Aqueous	PFHxS	PFAS by ID	0.60	J	ng/L	26
008	MW-22-148_111424	Aqueous	PFBA	PFAS by ID	1.8	J	ng/L	26
009	MW-22-143_111524	Aqueous	PFBA	PFAS by ID	10	J	ng/L	28
009	MW-22-143_111524	Aqueous	PFHpA	PFAS by ID	7.3	J	ng/L	28
009	MW-22-143_111524	Aqueous	PFHxA	PFAS by ID	17	J	ng/L	28
009	MW-22-143_111524	Aqueous	PFOA	PFAS by ID	6.4	J	ng/L	28
009	MW-22-143_111524	Aqueous	PFPeA	PFAS by ID	10	J	ng/L	28
010	DUP-08_111424	Aqueous	PFBS	PFAS by ID	3.8	J	ng/L	30
010	DUP-08_111424	Aqueous	PFHxS	PFAS by ID	2.7	J	ng/L	30
010	DUP-08_111424	Aqueous	PFBA	PFAS by ID	6.7		ng/L	30
010	DUP-08_111424	Aqueous	PFHpA	PFAS by ID	2.0	J	ng/L	30
010	DUP-08_111424	Aqueous	PFHxA	PFAS by ID	3.1	J	ng/L	30
010	DUP-08_111424	Aqueous	PFOA	PFAS by ID	6.9		ng/L	30
010	DUP-08_111424	Aqueous	PFPeA	PFAS by ID	3.1	J	ng/L	30
010	DUP-08_111424	Aqueous	PFOS	PFAS by ID	3.8	J	ng/L	30
011	MW-22-146_111524	Aqueous	PFBS	PFAS by ID	3.6	J	ng/L	32
011	MW-22-146_111524	Aqueous	PFHxS	PFAS by ID	0.93	J	ng/L	32
011	MW-22-146_111524	Aqueous	PFBA	PFAS by ID	7.0		ng/L	32
011	MW-22-146_111524	Aqueous	PFPeA	PFAS by ID	0.71	J	ng/L	32
012	MW-22-149_111524	Aqueous	PFBS	PFAS by ID	2.0	J	ng/L	34
012	MW-22-149_111524	Aqueous	PFHxS	PFAS by ID	1.0	J	ng/L	34
012	MW-22-149_111524	Aqueous	PFBA	PFAS by ID	0.76	J	ng/L	34
012	MW-22-149_111524	Aqueous	PFNA	PFAS by ID	0.57	J	ng/L	34
012	MW-22-149_111524	Aqueous	PFOA	PFAS by ID	1.6	J	ng/L	34
014	MW-21-133_111824	Aqueous	PFBS	PFAS by ID	3.0	J	ng/L	38
014	MW-21-133_111824	Aqueous	PFHxS	PFAS by ID	3.7		ng/L	38
014	MW-21-133_111824	Aqueous	PFBA	PFAS by ID	32		ng/L	38
014	MW-21-133_111824	Aqueous	PFHpA	PFAS by ID	40		ng/L	38
014	MW-21-133_111824	Aqueous	PFHxA	PFAS by ID	50		ng/L	38
014	MW-21-133_111824	Aqueous	PFNA	PFAS by ID	2.4	J	ng/L	38
014	MW-21-133_111824	Aqueous	PFOA	PFAS by ID	81		ng/L	38
014	MW-21-133_111824	Aqueous	PFPeA	PFAS by ID	37		ng/L	38
014	MW-21-133_111824	Aqueous	PFOS	PFAS by ID	5.5		ng/L	38
015	DUP-06_111824	Aqueous	PFBS	PFAS by ID	3.2	J	ng/L	40
015	DUP-06_111824	Aqueous	PFHxS	PFAS by ID	3.3	J	ng/L	40

Detection Summary (Continued)

Lot Number: ZK21007

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
015	DUP-06_111824	Aqueous	PFBA	PFAS by ID	30		ng/L	40
015	DUP-06_111824	Aqueous	PFHpA	PFAS by ID	43		ng/L	40
015	DUP-06_111824	Aqueous	PFHxA	PFAS by ID	51		ng/L	40
015	DUP-06_111824	Aqueous	PFNA	PFAS by ID	2.5	J	ng/L	40
015	DUP-06_111824	Aqueous	PFOA	PFAS by ID	83		ng/L	40
015	DUP-06_111824	Aqueous	PFPeA	PFAS by ID	41		ng/L	40
015	DUP-06_111824	Aqueous	PFOS	PFAS by ID	6.2		ng/L	40
016	MW-21-134_111824	Aqueous	PFBS	PFAS by ID	3.1	J	ng/L	42
016	MW-21-134_111824	Aqueous	PFHxS	PFAS by ID	3.3	J	ng/L	42
016	MW-21-134_111824	Aqueous	PFBA	PFAS by ID	22		ng/L	42
016	MW-21-134_111824	Aqueous	PFHpA	PFAS by ID	31		ng/L	42
016	MW-21-134_111824	Aqueous	PFHxA	PFAS by ID	42		ng/L	42
016	MW-21-134_111824	Aqueous	PFNA	PFAS by ID	1.7	J	ng/L	42
016	MW-21-134_111824	Aqueous	PFOA	PFAS by ID	53		ng/L	42
016	MW-21-134_111824	Aqueous	PFPeA	PFAS by ID	38		ng/L	42
016	MW-21-134_111824	Aqueous	PFOS	PFAS by ID	6.2		ng/L	42
017	MW-12-13_111824	Aqueous	PFBA	PFAS by ID	27		ng/L	44
017	MW-12-13_111824	Aqueous	PFHpA	PFAS by ID	27		ng/L	44
017	MW-12-13_111824	Aqueous	PFHxA	PFAS by ID	51		ng/L	44
017	MW-12-13_111824	Aqueous	PFOA	PFAS by ID	12		ng/L	44
017	MW-12-13_111824	Aqueous	PFPeA	PFAS by ID	31		ng/L	44
018	MW-20-131_111924	Aqueous	PFHxS	PFAS by ID	4.3		ng/L	46
018	MW-20-131_111924	Aqueous	PFDA	PFAS by ID	0.63	J	ng/L	46
018	MW-20-131_111924	Aqueous	PFHpA	PFAS by ID	20		ng/L	46
018	MW-20-131_111924	Aqueous	PFHxA	PFAS by ID	23		ng/L	46
018	MW-20-131_111924	Aqueous	PFNA	PFAS by ID	3.2	J	ng/L	46
018	MW-20-131_111924	Aqueous	PFOA	PFAS by ID	34		ng/L	46
018	MW-20-131_111924	Aqueous	PFPeA	PFAS by ID	29		ng/L	46
018	MW-20-131_111924	Aqueous	PFOS	PFAS by ID	9.5		ng/L	46
018	MW-20-131_111924	Aqueous	PFBA	PFAS by ID	22	H	ng/L	48
019	MW-20-132_111924	Aqueous	PFHpS	PFAS by ID	0.57	J	ng/L	50
019	MW-20-132_111924	Aqueous	PFHxS	PFAS by ID	3.4	J	ng/L	50
019	MW-20-132_111924	Aqueous	PFBA	PFAS by ID	19		ng/L	50
019	MW-20-132_111924	Aqueous	PFDA	PFAS by ID	3.8		ng/L	50
019	MW-20-132_111924	Aqueous	PFHpA	PFAS by ID	25		ng/L	50
019	MW-20-132_111924	Aqueous	PFHxA	PFAS by ID	24		ng/L	50
019	MW-20-132_111924	Aqueous	PFNA	PFAS by ID	8.4		ng/L	50
019	MW-20-132_111924	Aqueous	PFOA	PFAS by ID	44		ng/L	50
019	MW-20-132_111924	Aqueous	PFPeA	PFAS by ID	28		ng/L	50
019	MW-20-132_111924	Aqueous	PFOS	PFAS by ID	19		ng/L	50
020	MW-22-150_111924	Aqueous	PFBA	PFAS by ID	2.7	J	ng/L	52
020	MW-22-150_111924	Aqueous	PFPeA	PFAS by ID	1.6	J	ng/L	52
021	MW-22-151_111924	Aqueous	PFBS	PFAS by ID	6.7	J	ng/L	54
021	MW-22-151_111924	Aqueous	PFHxS	PFAS by ID	3.5	J	ng/L	54
021	MW-22-151_111924	Aqueous	PFBA	PFAS by ID	9.5	J	ng/L	54
021	MW-22-151_111924	Aqueous	PFHpA	PFAS by ID	4.0	J	ng/L	54
021	MW-22-151_111924	Aqueous	PFOA	PFAS by ID	15	J	ng/L	54
021	MW-22-151_111924	Aqueous	PFPeA	PFAS by ID	12	J	ng/L	54

Detection Summary (Continued)

Lot Number: ZK21007

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
023	MW-22-152_112024	Aqueous	PFBS	PFAS by ID	16		ng/L	58
023	MW-22-152_112024	Aqueous	PFHxS	PFAS by ID	4.5		ng/L	58
023	MW-22-152_112024	Aqueous	PFBA	PFAS by ID	6.6		ng/L	58
023	MW-22-152_112024	Aqueous	PFHpA	PFAS by ID	1.6	J	ng/L	58
023	MW-22-152_112024	Aqueous	PFHxA	PFAS by ID	3.5		ng/L	58
023	MW-22-152_112024	Aqueous	PFOA	PFAS by ID	6.4		ng/L	58
023	MW-22-152_112024	Aqueous	PFPeA	PFAS by ID	5.5		ng/L	58
024	DUP-09_112024	Aqueous	PFBS	PFAS by ID	18	J	ng/L	60
024	DUP-09_112024	Aqueous	PFHxS	PFAS by ID	5.9	J	ng/L	60
024	DUP-09_112024	Aqueous	PFOA	PFAS by ID	9.4	J	ng/L	60
024	DUP-09_112024	Aqueous	PFPeA	PFAS by ID	6.6	J	ng/L	60

(150 detections)

PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21007-001**

Description: **MW-22-145_111324** Matrix: **Aqueous**

Date Sampled: **11/13/2024 1125** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/11/2024 2244	BWS	12/09/2024 1046	21136

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.9	0.47	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.9	0.65	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.9	1.6	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.9	2.0	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.9	0.86	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.9	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.9	0.48	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.9	0.74	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.9	0.92	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**2.5**	**J**	**3.9**	**0.41**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.9	0.76	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.9	0.49	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.9	0.70	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.9	0.60	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	**2706-91-4**	**PFAS by ID SOP**	**0.78**	**J**	**3.9**	**0.58**	**ng/L**	**1**
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**4.1**		**3.9**	**0.54**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**8.7**		**3.9**	**0.59**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.9	0.52	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.9	0.46	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**11**		**3.9**	**0.44**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**20**		**3.9**	**0.68**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.9	0.45	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**22**		**3.9**	**0.81**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**16**		**3.9**	**0.53**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.9	0.59	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.9	0.52	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.9	0.62	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.9	2.0	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		88	25-150
13C2_6:2FTS		138	25-150
13C2_8:2FTS		80	25-150
13C2_PFDoA		68	25-150
13C2_PFTeDA		80	25-150
13C3_PFBS		79	25-150
13C3_PFHxS		75	25-150
13C3-HFPO-DA		81	25-150
13C4_PFBA		57	25-150
13C4_PFHpA		72	25-150
13C5_PFHxA		69	25-150
13C5_PFPeA		74	25-150
13C6_PFDA		73	25-150
13C7_PFUdA		73	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21007-001**

Description: **MW-22-145_111324** Matrix: **Aqueous**

Date Sampled: **11/13/2024 1125** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/11/2024 2244	BWS	12/09/2024 1046	21136

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		80	25-150
13C8_PFOS		79	25-150
13C8_PFOSA		84	10-150
13C9_PFNA		77	25-150
d5-EtFOSAA		88	25-150
d3-MeFOSAA		90	25-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
ND = Not detected at or above the DL	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis			S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21007-002**

Description: **MW-22-144_111324** Matrix: **Aqueous**

Date Sampled: **11/13/2024 1235** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/11/2024 2254	BWS	12/09/2024 1046	21136

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.7	0.46	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.7	0.63	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.7	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.7	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.7	0.84	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.7	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.7	0.46	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.7	0.72	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.7	0.89	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**3.2**	**J**	**3.8**	**0.40**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.8	0.74	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.8	0.48	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.8	0.68	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.8	0.59	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.8	0.57	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**10**		**3.8**	**0.53**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**5.6**		**3.8**	**0.57**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.8	0.50	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.8	0.45	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**5.5**		**3.8**	**0.43**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**9.6**		**3.8**	**0.66**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.8	0.44	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**11**		**3.8**	**0.79**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**8.4**		**3.8**	**0.52**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.8	0.57	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.8	0.51	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.8	0.60	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**2.3**	**J**	**3.8**	**1.9**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		102	25-150
13C2_6:2FTS		90	25-150
13C2_8:2FTS		76	25-150
13C2_PFDoA		63	25-150
13C2_PFTeDA		76	25-150
13C3_PFBS		73	25-150
13C3_PFHxS		77	25-150
13C3-HFPO-DA		84	25-150
13C4_PFBA		62	25-150
13C4_PFHpA		72	25-150
13C5_PFHxA		71	25-150
13C5_PFPeA		72	25-150
13C6_PFDA		75	25-150
13C7_PFUdA		70	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21007-002**

Description: **MW-22-144_111324** Matrix: **Aqueous**

Date Sampled: **11/13/2024 1235** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/11/2024 2254	BWS	12/09/2024 1046	21136

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		81	25-150
13C8_PFOS		81	25-150
13C8_PFOSA		83	10-150
13C9_PFNA		77	25-150
d5-EtFOSAA		89	25-150
d3-MeFOSAA		99	25-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
ND = Not detected at or above the DL	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis			S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21007-003**

Description: **MW-22-158_111324** Matrix: **Aqueous**

Date Sampled: **11/13/2024 1435** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/12/2024 1658	TAD	12/11/2024 1345	21187

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.8	0.47	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.8	0.64	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.8	1.6	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.8	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.8	0.85	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.8	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.8	0.47	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.8	0.73	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.8	0.90	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**1.8**	**J**	**3.9**	**0.40**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.9	0.75	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.9	0.48	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.9	0.69	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.9	0.59	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.9	0.58	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.9	0.53	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**5.5**		**3.9**	**0.58**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.9	0.51	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.9	0.46	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**1.2**	**J**	**3.9**	**0.43**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**2.9**	**J**	**3.9**	**0.67**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.9	0.45	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**1.3**	**J**	**3.9**	**0.80**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**2.8**	**J**	**3.9**	**0.53**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.9	0.58	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.9	0.51	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.9	0.61	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.9	1.9	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		98	25-150
13C2_6:2FTS		95	25-150
13C2_8:2FTS		71	25-150
13C2_PFDoA		76	25-150
13C2_PFTeDA		69	25-150
13C3_PFBS		79	25-150
13C3_PFHxS		73	25-150
13C3-HFPO-DA		77	25-150
13C4_PFBA		62	25-150
13C4_PFHpA		78	25-150
13C5_PFHxA		86	25-150
13C5_PFPeA		82	25-150
13C6_PFDA		73	25-150
13C7_PFUdA		75	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21007-003**

Description: **MW-22-158_111324** Matrix: **Aqueous**

Date Sampled: **11/13/2024 1435** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/12/2024 1658	TAD	12/11/2024 1345	21187

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		92	25-150
13C8_PFOS		79	25-150
13C8_PFOSA		68	10-150
13C9_PFNA		73	25-150
d5-EtFOSAA		69	25-150
d3-MeFOSAA		79	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21007-004**

Description: **MW-22-160_111324** Matrix: **Aqueous**

Date Sampled: **11/13/2024 1600** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/11/2024 2304	BWS	12/09/2024 1046	21136

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		8.1	0.49	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		8.1	0.67	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		8.1	1.6	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		8.1	2.0	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		8.1	0.88	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		8.1	2.1	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		8.1	0.49	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		8.1	0.76	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		8.1	0.94	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		4.0	0.42	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		4.0	0.78	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		4.0	0.50	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		4.0	0.72	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		4.0	0.62	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		4.0	0.60	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		4.0	0.56	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**1.3**	**J**	**4.0**	**0.60**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		4.0	0.53	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		4.0	0.47	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		4.0	0.45	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		4.0	0.69	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		4.0	0.46	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		4.0	0.83	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		4.0	0.55	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		4.0	0.60	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		4.0	0.53	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		4.0	0.63	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		4.0	2.0	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		96	25-150
13C2_6:2FTS		107	25-150
13C2_8:2FTS		75	25-150
13C2_PFDoA		66	25-150
13C2_PFTeDA		72	25-150
13C3_PFBS		74	25-150
13C3_PFHxS		73	25-150
13C3-HFPO-DA		87	25-150
13C4_PFBA		62	25-150
13C4_PFHpA		71	25-150
13C5_PFHxA		73	25-150
13C5_PFPeA		76	25-150
13C6_PFDA		69	25-150
13C7_PFUdA		69	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21007-004**

Description: **MW-22-160_111324** Matrix: **Aqueous**

Date Sampled: **11/13/2024 1600** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/11/2024 2304	BWS	12/09/2024 1046	21136

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		75	25-150
13C8_PFOS		82	25-150
13C8_PFOSA		82	10-150
13C9_PFNA		71	25-150
d5-EtFOSAA		81	25-150
d3-MeFOSAA		79	25-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
ND = Not detected at or above the DL	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis			S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21007-005**

Description: **MW-12-12_111424** Matrix: **Aqueous**

Date Sampled: **11/14/2024 1000** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/14/2024 0402	TAD	12/12/2024 0956	21208

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.7	0.46	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.7	0.64	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.7	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.7	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.7	0.84	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.7	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.7	0.46	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.7	0.72	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.7	0.89	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**2.5**	**J**	**3.8**	**0.40**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.8	0.75	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.8	0.48	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.8	0.68	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.8	0.59	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.8	0.57	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**2.4**	**J**	**3.8**	**0.53**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**63**		**3.8**	**0.58**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	**335-76-2**	**PFAS by ID SOP**	**9.6**		**3.8**	**0.50**	**ng/L**	**1**
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.8	0.45	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**70**		**3.8**	**0.43**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**170**		**3.8**	**0.66**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**6.7**		**3.8**	**0.44**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**150**		**3.8**	**0.80**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**100**		**3.8**	**0.52**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.8	0.58	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.8	0.51	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.8	0.60	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**24**		**3.8**	**1.9**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	205	25-150
13C2_6:2FTS	N	167	25-150
13C2_8:2FTS		125	25-150
13C2_PFDoA		71	25-150
13C2_PFTeDA		70	25-150
13C3_PFBS		66	25-150
13C3_PFHxS		76	25-150
13C3-HFPO-DA		69	25-150
13C4_PFBA		35	25-150
13C4_PFHpA		59	25-150
13C5_PFHxA		64	25-150
13C5_PFPeA		51	25-150
13C6_PFDA		70	25-150
13C7_PFUdA		81	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21007-005**

Description: **MW-12-12_111424** Matrix: **Aqueous**

Date Sampled: **11/14/2024 1000** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/14/2024 0402	TAD	12/12/2024 0956	21208

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		72	25-150
13C8_PFOS		85	25-150
13C8_PFOSA		77	10-150
13C9_PFNA		71	25-150
d5-EtFOSAA		90	25-150
d3-MeFOSAA		97	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21007-006**

Description: **MW-13-36R_111424** Matrix: **Aqueous**

Date Sampled: **11/14/2024 1125** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/14/2024 0412	TAD	12/12/2024 0956	21208
2	SOP SPE	PFAS by ID SOP	1	12/23/2024 2303	OMNS	12/19/2024 1253	21432

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.7	0.47	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.7	0.64	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND	Q	7.7	1.6	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.7	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.7	0.85	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.7	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.7	0.47	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	**2991-50-6**	**PFAS by ID SOP**	**5.4**	**J**	**7.7**	**0.73**	**ng/L**	**1**
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.7	0.90	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**2.6**	**J**	**3.9**	**0.40**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.9	0.75	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	**375-92-8**	**PFAS by ID SOP**	**0.61**	**J**	**3.9**	**0.48**	**ng/L**	**1**
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.9	0.69	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	**754-91-6**	**PFAS by ID SOP**	**3.6**	**J**	**3.9**	**0.59**	**ng/L**	**1**
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.9	0.57	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**2.0**	**J**	**3.9**	**0.53**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND	Q	3.9	0.58	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	**335-76-2**	**PFAS by ID SOP**	**24**		**3.9**	**0.51**	**ng/L**	**1**
Perfluoro-n-dodecanoic acid (PFDoA)	**307-55-1**	**PFAS by ID SOP**	**0.50**	**J**	**3.9**	**0.46**	**ng/L**	**1**
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**29**		**3.9**	**0.43**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**34**		**3.9**	**0.67**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**13**		**3.9**	**0.45**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**63**		**3.9**	**0.80**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**30**		**3.9**	**0.53**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.9	0.58	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.9	0.51	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	**2058-94-8**	**PFAS by ID SOP**	**0.76**	**J**	**3.9**	**0.61**	**ng/L**	**1**
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**46**		**3.9**	**1.9**	**ng/L**	**1**

Surrogate	Run 1 Q	Run 1 % Recovery	Run 1 Acceptance Limits	Run 2 Q	Run 2 % Recovery	Run 2 Acceptance Limits
13C2_4:2FTS	N	334	25-150	HN	238	25-150
13C2_6:2FTS	N	224	25-150	HN	266	25-150
13C2_8:2FTS	N	197	25-150	HN	206	25-150
13C2_PFDoA		80	25-150	H	80	25-150
13C2_PFTeDA		73	25-150	H	68	25-150
13C3_PFBS		84	25-150	H	73	25-150
13C3_PFHxS		78	25-150	H	72	25-150
13C3-HFPO-DA		69	25-150	H	58	25-150
13C4_PFBA	N	4.0	25-150	HN	3.0	25-150
13C4_PFHpA		69	25-150	H	56	25-150
13C5_PFHxA		77	25-150	H	66	25-150
13C5_PFPeA		68	25-150	H	51	25-150
13C6_PFDA		84	25-150	H	82	25-150

LOQ = Limit of Quantitation
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E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
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H = Out of holding time
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S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21007-006**

Description: **MW-13-36R_111424** Matrix: **Aqueous**

Date Sampled: **11/14/2024 1125** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/14/2024 0412	TAD	12/12/2024 0956	21208
2	SOP SPE	PFAS by ID SOP	1	12/23/2024 2303	OMNS	12/19/2024 1253	21432

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		95	25-150	H	96	25-150
13C8_PFOA		80	25-150	H	80	25-150
13C8_PFOS		76	25-150	H	73	25-150
13C8_PFOSA		78	10-150	H	77	10-150
13C9_PFNA		74	25-150	H	86	25-150
d5-EtFOSAA		113	25-150	H	107	25-150
d3-MeFOSAA		119	25-150	H	114	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21007-006**

Description: **MW-13-36R_111424** Matrix: **Aqueous**

Date Sampled: **11/14/2024 1125** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/14/2024 0412	TAD	12/12/2024 0956	21208
2	SOP SPE	PFAS by ID SOP	1	12/23/2024 2303	OMNS	12/19/2024 1253	21432

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND	H	7.6	0.46	ng/L	2
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND	H	7.6	0.63	ng/L	2
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND	HQ	7.6	1.5	ng/L	2
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	HQ	7.6	1.9	ng/L	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	HQ	7.6	0.83	ng/L	2
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND	H	7.6	2.0	ng/L	2
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND	H	7.6	0.46	ng/L	2
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	**2991-50-6**	**PFAS by ID SOP**	**5.5**	**HJ**	**7.6**	**0.71**	**ng/L**	**2**
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	**2355-31-9**	**PFAS by ID SOP**	**3.5**	**HJ**	**7.6**	**0.89**	**ng/L**	**2**
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**3.1**	**HJ**	**3.8**	**0.39**	**ng/L**	**2**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND	H	3.8	0.74	ng/L	2
Perfluoro-1-heptanesulfonic acid (PFHpS)	**375-92-8**	**PFAS by ID SOP**	**0.59**	**HJ**	**3.8**	**0.47**	**ng/L**	**2**
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND	H	3.8	0.68	ng/L	2
Perfluoro-1-octanesulfonamide (PFOSA)	**754-91-6**	**PFAS by ID SOP**	**3.2**	**HJ**	**3.8**	**0.58**	**ng/L**	**2**
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND	H	3.8	0.56	ng/L	2
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**1.7**	**HJ**	**3.8**	**0.52**	**ng/L**	**2**
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND	HQ	3.8	0.57	ng/L	2
Perfluoro-n-decanoic acid (PFDA)	**335-76-2**	**PFAS by ID SOP**	**22**	**H**	**3.8**	**0.50**	**ng/L**	**2**
Perfluoro-n-dodecanoic acid (PFDoA)	**307-55-1**	**PFAS by ID SOP**	**0.46**	**HJ**	**3.8**	**0.45**	**ng/L**	**2**
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**27**	**H**	**3.8**	**0.43**	**ng/L**	**2**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**40**	**H**	**3.8**	**0.65**	**ng/L**	**2**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**14**	**H**	**3.8**	**0.44**	**ng/L**	**2**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**53**	**H**	**3.8**	**0.79**	**ng/L**	**2**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**30**	**H**	**3.8**	**0.52**	**ng/L**	**2**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND	H	3.8	0.57	ng/L	2
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND	H	3.8	0.50	ng/L	2
Perfluoro-n-undecanoic acid (PFUdA)	**2058-94-8**	**PFAS by ID SOP**	**0.74**	**HJ**	**3.8**	**0.60**	**ng/L**	**2**
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**46**	**H**	**3.8**	**1.9**	**ng/L**	**2**

Surrogate	Run 1 Q	Run 1 % Recovery	Run 1 Acceptance Limits	Run 2 Q	Run 2 % Recovery	Run 2 Acceptance Limits
13C2_4:2FTS	N	334	25-150	HN	238	25-150
13C2_6:2FTS	N	224	25-150	HN	266	25-150
13C2_8:2FTS	N	197	25-150	HN	206	25-150
13C2_PFDoA		80	25-150	H	80	25-150
13C2_PFTeDA		73	25-150	H	68	25-150
13C3_PFBS		84	25-150	H	73	25-150
13C3_PFHxS		78	25-150	H	72	25-150
13C3-HFPO-DA		69	25-150	H	58	25-150
13C4_PFBA	N	4.0	25-150	HN	3.0	25-150
13C4_PFHpA		69	25-150	H	56	25-150
13C5_PFHxA		77	25-150	H	66	25-150
13C5_PFPeA		68	25-150	H	51	25-150
13C6_PFDA		84	25-150	H	82	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21007-006**

Description: **MW-13-36R_111424** Matrix: **Aqueous**

Date Sampled: **11/14/2024 1125** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/14/2024 0412	TAD	12/12/2024 0956	21208
2	SOP SPE	PFAS by ID SOP	1	12/23/2024 2303	OMNS	12/19/2024 1253	21432

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		95	25-150	H	96	25-150
13C8_PFOA		80	25-150	H	80	25-150
13C8_PFOS		76	25-150	H	73	25-150
13C8_PFOSA		78	10-150	H	77	10-150
13C9_PFNA		74	25-150	H	86	25-150
d5-EtFOSAA		113	25-150	H	107	25-150
d3-MeFOSAA		119	25-150	H	114	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21007-007**

Description: **MW-22-147_111424** Matrix: **Aqueous**

Date Sampled: **11/14/2024 1255** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/14/2024 0422	TAD	12/12/2024 0956	21208

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.7	0.46	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.7	0.63	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.7	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.7	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.7	0.84	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.7	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.7	0.46	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.7	0.72	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.7	0.89	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**3.6**	**J**	**3.8**	**0.40**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.8	0.75	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.8	0.48	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.8	0.68	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.8	0.59	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.8	0.57	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**2.6**	**J**	**3.8**	**0.53**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**6.6**		**3.8**	**0.57**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.8	0.50	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.8	0.45	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**1.6**	**J**	**3.8**	**0.43**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**3.3**	**J**	**3.8**	**0.66**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.8	0.44	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**7.3**		**3.8**	**0.79**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**3.4**	**J**	**3.8**	**0.52**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.8	0.57	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.8	0.51	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.8	0.60	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**3.3**	**J**	**3.8**	**1.9**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	197	25-150
13C2_6:2FTS		109	25-150
13C2_8:2FTS		90	25-150
13C2_PFDoA		71	25-150
13C2_PFTeDA		72	25-150
13C3_PFBS		73	25-150
13C3_PFHxS		84	25-150
13C3-HFPO-DA		99	25-150
13C4_PFBA		57	25-150
13C4_PFHpA		80	25-150
13C5_PFHxA		86	25-150
13C5_PFPeA		82	25-150
13C6_PFDA		81	25-150
13C7_PFUdA		76	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
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L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21007-007**

Description: **MW-22-147_111424** Matrix: **Aqueous**

Date Sampled: **11/14/2024 1255** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/14/2024 0422	TAD	12/12/2024 0956	21208

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		85	25-150
13C8_PFOS		82	25-150
13C8_PFOSA		76	10-150
13C9_PFNA		74	25-150
d5-EtFOSAA		81	25-150
d3-MeFOSAA		83	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21007-008**

Description: **MW-22-148_111424** Matrix: **Aqueous**

Date Sampled: **11/14/2024 1415** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/14/2024 0452	TAD	12/12/2024 0956	21208

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.9	0.48	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.9	0.66	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.9	1.6	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.9	2.0	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.9	0.87	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.9	2.1	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.9	0.48	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.9	0.74	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.9	0.92	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**2.2**	**J**	**4.0**	**0.41**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		4.0	0.77	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		4.0	0.49	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		4.0	0.71	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		4.0	0.61	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		4.0	0.59	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**0.60**	**J**	**4.0**	**0.55**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**1.8**	**J**	**4.0**	**0.60**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		4.0	0.52	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		4.0	0.47	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		4.0	0.44	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		4.0	0.68	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		4.0	0.46	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		4.0	0.82	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		4.0	0.54	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		4.0	0.59	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		4.0	0.52	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		4.0	0.62	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		4.0	2.0	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		96	25-150
13C2_6:2FTS		99	25-150
13C2_8:2FTS		79	25-150
13C2_PFDoA		76	25-150
13C2_PFTeDA		72	25-150
13C3_PFBS		82	25-150
13C3_PFHxS		71	25-150
13C3-HFPO-DA		94	25-150
13C4_PFBA		69	25-150
13C4_PFHpA		75	25-150
13C5_PFHxA		81	25-150
13C5_PFPeA		81	25-150
13C6_PFDA		75	25-150
13C7_PFUdA		77	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21007-008**

Description: **MW-22-148_111424** Matrix: **Aqueous**

Date Sampled: **11/14/2024 1415** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/14/2024 0452	TAD	12/12/2024 0956	21208

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		85	25-150
13C8_PFOS		85	25-150
13C8_PFOSA		72	10-150
13C9_PFNA		70	25-150
d5-EtFOSAA		76	25-150
d3-MeFOSAA		88	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21007-009**

Description: **MW-22-143_111524** Matrix: **Aqueous**

Date Sampled: **11/15/2024 1005** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/14/2024 0502	TAD	12/12/2024 0956	21208

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		40	2.4	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		40	3.3	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		40	8.0	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		40	10	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		40	4.4	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		40	10	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		40	2.4	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		40	3.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		40	4.7	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		20	2.1	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		20	3.9	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		20	2.5	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		20	3.6	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		20	3.1	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		20	3.0	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		20	2.8	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**10**	**J**	**20**	**3.0**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		20	2.6	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		20	2.4	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**7.3**	**J**	**20**	**2.2**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**17**	**J**	**20**	**3.4**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		20	2.3	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**6.4**	**J**	**20**	**4.1**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**10**	**J**	**20**	**2.7**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		20	3.0	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		20	2.6	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		20	3.1	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		91	25-150
13C2_6:2FTS		93	25-150
13C2_8:2FTS		84	25-150
13C2_PFDoA		76	25-150
13C2_PFTeDA		71	25-150
13C3_PFBS		79	25-150
13C3_PFHxS		85	25-150
13C3-HFPO-DA		92	25-150
13C4_PFBA		82	25-150
13C4_PFHpA		77	25-150
13C5_PFHxA		70	25-150
13C5_PFPeA		89	25-150
13C6_PFDA		73	25-150
13C7_PFUdA		85	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21007-009**

Description: **MW-22-143_111524** Matrix: **Aqueous**

Date Sampled: **11/15/2024 1005** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/14/2024 0502	TAD	12/12/2024 0956	21208

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		92	25-150
13C8_PFOS		84	25-150
13C8_PFOSA		76	10-150
13C9_PFNA		82	25-150
d5-EtFOSAA		79	25-150
d3-MeFOSAA		89	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
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S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21007-010**

Description: **DUP-08_111424** Matrix: **Aqueous**

Date Sampled: **11/14/2024** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/14/2024 0512	TAD	12/12/2024 0956	21208

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		8.0	0.48	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		8.0	0.66	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		8.0	1.6	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		8.0	2.0	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	8.0	0.87	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		8.0	2.1	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		8.0	0.48	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		8.0	0.75	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		8.0	0.93	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**3.8**	**J**	**4.0**	**0.41**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		4.0	0.78	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		4.0	0.50	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		4.0	0.71	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		4.0	0.61	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		4.0	0.59	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**2.7**	**J**	**4.0**	**0.55**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**6.7**		**4.0**	**0.60**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		4.0	0.52	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		4.0	0.47	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**2.0**	**J**	**4.0**	**0.45**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**3.1**	**J**	**4.0**	**0.69**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		4.0	0.46	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**6.9**		**4.0**	**0.83**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**3.1**	**J**	**4.0**	**0.54**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		4.0	0.60	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		4.0	0.53	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		4.0	0.63	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**3.8**	**J**	**4.0**	**2.0**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	217	25-150
13C2_6:2FTS		112	25-150
13C2_8:2FTS		84	25-150
13C2_PFDoA		72	25-150
13C2_PFTeDA		75	25-150
13C3_PFBS		78	25-150
13C3_PFHxS		85	25-150
13C3-HFPO-DA		90	25-150
13C4_PFBA		58	25-150
13C4_PFHpA		76	25-150
13C5_PFHxA		80	25-150
13C5_PFPeA		87	25-150
13C6_PFDA		75	25-150
13C7_PFUdA		80	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
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H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21007-010**

Description: **DUP-08_111424** Matrix: **Aqueous**

Date Sampled: **11/14/2024** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/14/2024 0512	TAD	12/12/2024 0956	21208

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		92	25-150
13C8_PFOS		80	25-150
13C8_PFOSA		82	10-150
13C9_PFNA		77	25-150
d5-EtFOSAA		85	25-150
d3-MeFOSAA		87	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
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DL = Detection Limit
Q = Surrogate failure
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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21007-011**

Description: **MW-22-146_111524** Matrix: **Aqueous**

Date Sampled: **11/15/2024 1125** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/14/2024 0522	TAD	12/12/2024 0956	21208

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.8	0.47	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.8	0.65	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.8	1.6	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.8	2.0	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.8	0.86	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.8	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.8	0.47	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.8	0.74	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.8	0.91	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**3.6**	**J**	**3.9**	**0.41**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.9	0.76	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.9	0.49	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.9	0.70	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.9	0.60	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.9	0.58	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**0.93**	**J**	**3.9**	**0.54**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**7.0**		**3.9**	**0.59**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.9	0.51	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.9	0.46	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.9	0.44	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.9	0.67	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.9	0.45	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.9	0.81	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**0.71**	**J**	**3.9**	**0.53**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.9	0.59	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.9	0.52	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.9	0.61	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.9	2.0	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	151	25-150
13C2_6:2FTS		118	25-150
13C2_8:2FTS		86	25-150
13C2_PFDoA		73	25-150
13C2_PFTeDA		77	25-150
13C3_PFBS		76	25-150
13C3_PFHxS		80	25-150
13C3-HFPO-DA		94	25-150
13C4_PFBA		56	25-150
13C4_PFHpA		75	25-150
13C5_PFHxA		75	25-150
13C5_PFPeA		81	25-150
13C6_PFDA		86	25-150
13C7_PFUdA		77	25-150

LOQ = Limit of Quantitation
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DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
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L = LCS/LCSD failure
H = Out of holding time
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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21007-011**

Description: **MW-22-146_111524** Matrix: **Aqueous**

Date Sampled: **11/15/2024 1125** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/14/2024 0522	TAD	12/12/2024 0956	21208

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		86	25-150
13C8_PFOS		82	25-150
13C8_PFOSA		78	10-150
13C9_PFNA		81	25-150
d5-EtFOSAA		90	25-150
d3-MeFOSAA		86	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21007-012**

Description: **MW-22-149_111524** Matrix: **Aqueous**

Date Sampled: **11/15/2024 1225** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/14/2024 0532	TAD	12/12/2024 0956	21208

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.9	0.47	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.9	0.65	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.9	1.6	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.9	2.0	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.9	0.86	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.9	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.9	0.48	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.9	0.74	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.9	0.92	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**2.0**	**J**	**3.9**	**0.41**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.9	0.77	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.9	0.49	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.9	0.70	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.9	0.60	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.9	0.58	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**1.0**	**J**	**3.9**	**0.54**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**0.76**	**J**	**3.9**	**0.59**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.9	0.52	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.9	0.46	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.9	0.44	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.9	0.68	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**0.57**	**J**	**3.9**	**0.45**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**1.6**	**J**	**3.9**	**0.82**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.9	0.54	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.9	0.59	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.9	0.52	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.9	0.62	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.9	2.0	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		94	25-150
13C2_6:2FTS		99	25-150
13C2_8:2FTS		78	25-150
13C2_PFDoA		80	25-150
13C2_PFTeDA		77	25-150
13C3_PFBS		85	25-150
13C3_PFHxS		85	25-150
13C3-HFPO-DA		100	25-150
13C4_PFBA		67	25-150
13C4_PFHpA		80	25-150
13C5_PFHxA		78	25-150
13C5_PFPeA		89	25-150
13C6_PFDA		79	25-150
13C7_PFUdA		82	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21007-012**

Description: **MW-22-149_111524** Matrix: **Aqueous**

Date Sampled: **11/15/2024 1225** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/14/2024 0532	TAD	12/12/2024 0956	21208

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		87	25-150
13C8_PFOS		85	25-150
13C8_PFOSA		82	10-150
13C9_PFNA		82	25-150
d5-EtFOSAA		88	25-150
d3-MeFOSAA		87	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21007-013**

Description: **EB-01_111524** Matrix: **Aqueous**

Date Sampled: **11/15/2024 1315** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/18/2024 1821	TAD	12/13/2024 1109	21259

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		8.8	0.53	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		8.8	0.73	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		8.8	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		8.8	2.2	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		8.8	0.96	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		8.8	2.3	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		8.8	0.53	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		8.8	0.82	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		8.8	1.0	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		4.4	0.46	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		4.4	0.85	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		4.4	0.55	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		4.4	0.78	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		4.4	0.67	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		4.4	0.65	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		4.4	0.61	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		4.4	0.66	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		4.4	0.58	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		4.4	0.52	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		4.4	0.49	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		4.4	0.76	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		4.4	0.51	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		4.4	0.91	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		4.4	0.60	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		4.4	0.66	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		4.4	0.58	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		4.4	0.69	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		4.4	2.2	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		76	25-150
13C2_6:2FTS		97	25-150
13C2_8:2FTS		78	25-150
13C2_PFDoA		60	25-150
13C2_PFTeDA		50	25-150
13C3_PFBS		69	25-150
13C3_PFHxS		69	25-150
13C3-HFPO-DA		75	25-150
13C4_PFBA		55	25-150
13C4_PFHpA		73	25-150
13C5_PFHxA		65	25-150
13C5_PFPeA		68	25-150
13C6_PFDA		63	25-150
13C7_PFUdA		58	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21007-013**

Description: **EB-01_111524** Matrix: **Aqueous**

Date Sampled: **11/15/2024 1315** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/18/2024 1821	TAD	12/13/2024 1109	21259

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		69	25-150
13C8_PFOS		65	25-150
13C8_PFOSA		60	10-150
13C9_PFNA		69	25-150
d5-EtFOSAA		73	25-150
d3-MeFOSAA		77	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21007-014**

Description: **MW-21-133_111824** Matrix: **Aqueous**

Date Sampled: **11/18/2024 1210** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/18/2024 1831	TAD	12/13/2024 1109	21259

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.9	0.41	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.9	0.57	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.9	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		6.9	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	6.9	0.75	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.9	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.9	0.41	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.9	0.64	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.9	0.80	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**3.0**	**J**	**3.4**	**0.36**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.4	0.67	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.4	0.43	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.4	0.61	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.4	0.53	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**3.7**		**3.4**	**0.47**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**32**		**3.4**	**0.51**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.4	0.40	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**40**		**3.4**	**0.38**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**50**		**3.4**	**0.59**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**2.4**	**J**	**3.4**	**0.40**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**81**		**3.4**	**0.71**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**37**		**3.4**	**0.47**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.4	0.54	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**5.5**		**3.4**	**1.7**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	155	25-150
13C2_6:2FTS		105	25-150
13C2_8:2FTS		81	25-150
13C2_PFDoA		73	25-150
13C2_PFTeDA		63	25-150
13C3_PFBS		75	25-150
13C3_PFHxS		76	25-150
13C3-HFPO-DA		73	25-150
13C4_PFBA		52	25-150
13C4_PFHpA		80	25-150
13C5_PFHxA		78	25-150
13C5_PFPeA		73	25-150
13C6_PFDA		68	25-150
13C7_PFUdA		67	25-150

LOQ = Limit of Quantitation
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Q = Surrogate failure
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N = Recovery is out of criteria
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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21007-014**

Description: **MW-21-133_111824** Matrix: **Aqueous**

Date Sampled: **11/18/2024 1210** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/18/2024 1831	TAD	12/13/2024 1109	21259

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		80	25-150
13C8_PFOS		71	25-150
13C8_PFOSA		70	10-150
13C9_PFNA		74	25-150
d5-EtFOSAA		77	25-150
d3-MeFOSAA		80	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21007-015**

Description: **DUP-06_111824** Matrix: **Aqueous**

Date Sampled: **11/18/2024** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/18/2024 1841	TAD	12/13/2024 1109	21259

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.8	0.41	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.8	0.56	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.8	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		6.8	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	6.8	0.74	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.8	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.8	0.41	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.8	0.64	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.8	0.79	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**3.2**	**J**	**3.4**	**0.35**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.4	0.66	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.4	0.42	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.4	0.61	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.4	0.52	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**3.3**	**J**	**3.4**	**0.47**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**30**		**3.4**	**0.51**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.4	0.40	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**43**		**3.4**	**0.38**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**51**		**3.4**	**0.59**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**2.5**	**J**	**3.4**	**0.39**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**83**		**3.4**	**0.71**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**41**		**3.4**	**0.46**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.4	0.53	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**6.2**		**3.4**	**1.7**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	180	25-150
13C2_6:2FTS		130	25-150
13C2_8:2FTS		84	25-150
13C2_PFDoA		67	25-150
13C2_PFTeDA		67	25-150
13C3_PFBS		75	25-150
13C3_PFHxS		83	25-150
13C3-HFPO-DA		75	25-150
13C4_PFBA		54	25-150
13C4_PFHpA		79	25-150
13C5_PFHxA		79	25-150
13C5_PFPeA		70	25-150
13C6_PFDA		70	25-150
13C7_PFUdA		71	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21007-015**

Description: **DUP-06_111824** Matrix: **Aqueous**

Date Sampled: **11/18/2024** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/18/2024 1841	TAD	12/13/2024 1109	21259

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		79	25-150
13C8_PFOS		77	25-150
13C8_PFOSA		69	10-150
13C9_PFNA		81	25-150
d5-EtFOSAA		76	25-150
d3-MeFOSAA		82	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21007-016**

Description: **MW-21-134_111824** Matrix: **Aqueous**

Date Sampled: **11/18/2024 1310** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/18/2024 1851	TAD	12/13/2024 1109	21259

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.1	0.43	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.1	0.59	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.1	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.1	0.77	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.1	0.43	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.1	0.66	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.1	0.82	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**3.1**	**J**	**3.5**	**0.37**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.5	0.69	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.5	0.44	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.5	0.63	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.5	0.54	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.5	0.53	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**3.3**	**J**	**3.5**	**0.49**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**22**		**3.5**	**0.53**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.5	0.46	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.5	0.42	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**31**		**3.5**	**0.40**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**42**		**3.5**	**0.61**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**1.7**	**J**	**3.5**	**0.41**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**53**		**3.5**	**0.73**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**38**		**3.5**	**0.48**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.5	0.53	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.5	0.47	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.5	0.55	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**6.2**		**3.5**	**1.8**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		139	25-150
13C2_6:2FTS		109	25-150
13C2_8:2FTS		84	25-150
13C2_PFDoA		70	25-150
13C2_PFTeDA		68	25-150
13C3_PFBS		73	25-150
13C3_PFHxS		84	25-150
13C3-HFPO-DA		75	25-150
13C4_PFBA		61	25-150
13C4_PFHpA		84	25-150
13C5_PFHxA		76	25-150
13C5_PFPeA		76	25-150
13C6_PFDA		66	25-150
13C7_PFUdA		72	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21007-016**

Description: **MW-21-134_111824** Matrix: **Aqueous**

Date Sampled: **11/18/2024 1310** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/18/2024 1851	TAD	12/13/2024 1109	21259

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		85	25-150
13C8_PFOS		73	25-150
13C8_PFOSA		72	10-150
13C9_PFNA		78	25-150
d5-EtFOSAA		72	25-150
d3-MeFOSAA		81	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
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Q = Surrogate failure
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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21007-017**

Description: **MW-12-13_111824** Matrix: **Aqueous**

Date Sampled: **11/18/2024 1505** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/18/2024 1901	TAD	12/13/2024 1109	21259

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.8	0.41	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.8	0.56	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.8	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		6.8	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	6.8	0.74	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.8	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.8	0.41	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.8	0.64	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.8	0.79	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.4	0.35	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.4	0.66	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.4	0.42	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.4	0.60	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.4	0.52	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.4	0.50	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.4	0.47	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**27**		**3.4**	**0.51**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.4	0.40	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**27**		**3.4**	**0.38**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**51**		**3.4**	**0.58**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.4	0.39	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**12**		**3.4**	**0.70**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**31**		**3.4**	**0.46**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.4	0.53	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.4	1.7	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	184	25-150
13C2_6:2FTS		125	25-150
13C2_8:2FTS		76	25-150
13C2_PFDoA		74	25-150
13C2_PFTeDA		67	25-150
13C3_PFBS		70	25-150
13C3_PFHxS		77	25-150
13C3-HFPO-DA		65	25-150
13C4_PFBA		47	25-150
13C4_PFHpA		77	25-150
13C5_PFHxA		77	25-150
13C5_PFPeA		68	25-150
13C6_PFDA		69	25-150
13C7_PFUdA		71	25-150

LOQ = Limit of Quantitation
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Q = Surrogate failure
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N = Recovery is out of criteria
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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21007-017**

Description: **MW-12-13_111824** Matrix: **Aqueous**

Date Sampled: **11/18/2024 1505** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/18/2024 1901	TAD	12/13/2024 1109	21259

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		82	25-150
13C8_PFOS		75	25-150
13C8_PFOSA		73	10-150
13C9_PFNA		83	25-150
d5-EtFOSAA		78	25-150
d3-MeFOSAA		82	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
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P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21007-018**

Description: **MW-20-131_111924** Matrix: **Aqueous**

Date Sampled: **11/19/2024 1055** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/18/2024 1911	TAD	12/13/2024 1109	21259
2	SOP SPE	PFAS by ID SOP	1	12/24/2024 1943	OMNS	12/23/2024 1047	21508

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.7	0.40	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.7	0.56	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.7	1.3	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	6.7	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		6.7	0.73	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.7	1.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.7	0.41	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.7	0.63	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.7	0.78	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.4	0.35	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.4	0.65	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.4	0.42	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.4	0.60	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.4	0.50	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**4.3**		**3.4**	**0.46**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**21**	**Q**	**3.4**	**0.50**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	**335-76-2**	**PFAS by ID SOP**	**0.63**	**J**	**3.4**	**0.44**	**ng/L**	**1**
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.4	0.40	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**20**		**3.4**	**0.38**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**23**		**3.4**	**0.58**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**3.2**	**J**	**3.4**	**0.39**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**34**		**3.4**	**0.70**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**29**		**3.4**	**0.46**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.4	0.50	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.4	0.44	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.4	0.53	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**9.5**		**3.4**	**1.7**	**ng/L**	**1**

Surrogate	Run 1 Q	Run 1 % Recovery	Run 1 Acceptance Limits	Run 2 Q	Run 2 % Recovery	Run 2 Acceptance Limits
13C2_4:2FTS		141	25-150	HN	237	25-150
13C2_6:2FTS	N	160	25-150	HN	322	25-150
13C2_8:2FTS		148	25-150	HN	224	25-150
13C2_PFDoA		68	25-150	H	87	25-150
13C2_PFTeDA		55	25-150	H	77	25-150
13C3_PFBS		52	25-150	H	73	25-150
13C3_PFHxS		68	25-150	H	88	25-150
13C3-HFPO-DA		40	25-150	H	58	25-150
13C4_PFBA	N	20	25-150	H	29	25-150
13C4_PFHpA		56	25-150	H	54	25-150
13C5_PFHxA		43	25-150	H	67	25-150
13C5_PFPeA		32	25-150	H	41	25-150
13C6_PFDA		65	25-150	H	103	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21007-018**

Description: **MW-20-131_111924** Matrix: **Aqueous**

Date Sampled: **11/19/2024 1055** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/18/2024 1911	TAD	12/13/2024 1109	21259
2	SOP SPE	PFAS by ID SOP	1	12/24/2024 1943	OMNS	12/23/2024 1047	21508

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		68	25-150	H	104	25-150
13C8_PFOA		63	25-150	H	94	25-150
13C8_PFOS		64	25-150	H	90	25-150
13C8_PFOSA		60	10-150	H	92	10-150
13C9_PFNA		69	25-150	H	99	25-150
d5-EtFOSAA		94	25-150	H	134	25-150
d3-MeFOSAA		94	25-150	H	116	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
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ND = Not detected at or above the DL
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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21007-018**

Description: **MW-20-131_111924** Matrix: **Aqueous**

Date Sampled: **11/19/2024 1055** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/18/2024 1911	TAD	12/13/2024 1109	21259
2	SOP SPE	PFAS by ID SOP	1	12/24/2024 1943	OMNS	12/23/2024 1047	21508

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND	H	7.4	0.45	ng/L	2
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND	H	7.4	0.61	ng/L	2
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND	HQ	7.4	1.5	ng/L	2
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	HQ	7.4	1.9	ng/L	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	HQ	7.4	0.81	ng/L	2
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND	H	7.4	1.9	ng/L	2
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND	H	7.4	0.45	ng/L	2
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND	H	7.4	0.70	ng/L	2
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND	H	7.4	0.86	ng/L	2
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**5.4**	**H**	**3.7**	**0.38**	**ng/L**	**2**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND	H	3.7	0.72	ng/L	2
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND	H	3.7	0.46	ng/L	2
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND	H	3.7	0.66	ng/L	2
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND	H	3.7	0.57	ng/L	2
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND	H	3.7	0.55	ng/L	2
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**1.8**	**HJ**	**3.7**	**0.51**	**ng/L**	**2**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**22**	**H**	**3.7**	**0.56**	**ng/L**	**2**
Perfluoro-n-decanoic acid (PFDA)	**335-76-2**	**PFAS by ID SOP**	**0.54**	**HJ**	**3.7**	**0.49**	**ng/L**	**2**
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND	H	3.7	0.44	ng/L	2
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**21**	**H**	**3.7**	**0.41**	**ng/L**	**2**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**24**	**H**	**3.7**	**0.64**	**ng/L**	**2**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**3.0**	**HJ**	**3.7**	**0.43**	**ng/L**	**2**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**32**	**H**	**3.7**	**0.77**	**ng/L**	**2**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**28**	**H**	**3.7**	**0.50**	**ng/L**	**2**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND	H	3.7	0.56	ng/L	2
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND	H	3.7	0.49	ng/L	2
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND	H	3.7	0.58	ng/L	2
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**8.6**	**H**	**3.7**	**1.9**	**ng/L**	**2**

Surrogate	Run 1 Q	Run 1 % Recovery	Run 1 Acceptance Limits	Run 2 Q	Run 2 % Recovery	Run 2 Acceptance Limits
13C2_4:2FTS		141	25-150	HN	237	25-150
13C2_6:2FTS	N	160	25-150	HN	322	25-150
13C2_8:2FTS		148	25-150	HN	224	25-150
13C2_PFDoA		68	25-150	H	87	25-150
13C2_PFTeDA		55	25-150	H	77	25-150
13C3_PFBS		52	25-150	H	73	25-150
13C3_PFHxS		68	25-150	H	88	25-150
13C3-HFPO-DA		40	25-150	H	58	25-150
13C4_PFBA	N	20	25-150	H	29	25-150
13C4_PFHpA		56	25-150	H	54	25-150
13C5_PFHxA		43	25-150	H	67	25-150
13C5_PFPeA		32	25-150	H	41	25-150
13C6_PFDA		65	25-150	H	103	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21007-018**

Description: **MW-20-131_111924** Matrix: **Aqueous**

Date Sampled: **11/19/2024 1055** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/18/2024 1911	TAD	12/13/2024 1109	21259
2	SOP SPE	PFAS by ID SOP	1	12/24/2024 1943	OMNS	12/23/2024 1047	21508

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		68	25-150	H	104	25-150
13C8_PFOA		63	25-150	H	94	25-150
13C8_PFOS		64	25-150	H	90	25-150
13C8_PFOSA		60	10-150	H	92	10-150
13C9_PFNA		69	25-150	H	99	25-150
d5-EtFOSAA		94	25-150	H	134	25-150
d3-MeFOSAA		94	25-150	H	116	25-150

LOQ = Limit of Quantitation
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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21007-019**

Description: **MW-20-132_111924** Matrix: **Aqueous**

Date Sampled: **11/19/2024 1205** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/18/2024 1941	TAD	12/13/2024 1109	21259

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.0	0.42	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.0	0.58	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.0	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.0	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.0	0.76	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.0	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.0	0.42	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.0	0.65	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.0	0.81	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.5	0.36	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.5	0.68	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	**375-92-8**	**PFAS by ID SOP**	**0.57**	**J**	**3.5**	**0.43**	**ng/L**	**1**
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.5	0.62	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.5	0.53	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.5	0.52	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**3.4**	**J**	**3.5**	**0.48**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**19**		**3.5**	**0.52**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	**335-76-2**	**PFAS by ID SOP**	**3.8**		**3.5**	**0.46**	**ng/L**	**1**
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.5	0.41	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**25**		**3.5**	**0.39**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**24**		**3.5**	**0.60**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**8.4**		**3.5**	**0.40**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**44**		**3.5**	**0.72**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**28**		**3.5**	**0.47**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.5	0.52	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.5	0.46	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.5	0.55	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**19**		**3.5**	**1.7**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	181	25-150
13C2_6:2FTS	N	161	25-150
13C2_8:2FTS		114	25-150
13C2_PFDoA		70	25-150
13C2_PFTeDA		62	25-150
13C3_PFBS		68	25-150
13C3_PFHxS		78	25-150
13C3-HFPO-DA		59	25-150
13C4_PFBA		39	25-150
13C4_PFHpA		69	25-150
13C5_PFHxA		66	25-150
13C5_PFPeA		56	25-150
13C6_PFDA		63	25-150
13C7_PFUdA		65	25-150

LOQ = Limit of Quantitation
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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21007-019**

Description: **MW-20-132_111924** Matrix: **Aqueous**

Date Sampled: **11/19/2024 1205** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/18/2024 1941	TAD	12/13/2024 1109	21259

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		72	25-150
13C8_PFOS		73	25-150
13C8_PFOSA		68	10-150
13C9_PFNA		78	25-150
d5-EtFOSAA		80	25-150
d3-MeFOSAA		85	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21007-020**

Description: **MW-22-150_111924** Matrix: **Aqueous**

Date Sampled: **11/19/2024 1345** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/18/2024 1951	TAD	12/13/2024 1109	21259

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.9	0.42	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.9	0.57	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.9	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		6.9	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	6.9	0.75	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.9	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.9	0.42	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.9	0.65	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.9	0.80	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.5	0.36	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.5	0.67	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.5	0.43	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.5	0.61	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.5	0.53	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.5	0.51	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.5	0.48	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**2.7**	**J**	**3.5**	**0.52**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.5	0.45	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.5	0.41	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.5	0.39	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.5	0.59	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.5	0.40	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.5	0.72	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**1.6**	**J**	**3.5**	**0.47**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.5	0.52	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.5	0.46	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.5	0.54	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.5	1.7	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	170	25-150
13C2_6:2FTS		144	25-150
13C2_8:2FTS		84	25-150
13C2_PFDoA		71	25-150
13C2_PFTeDA		64	25-150
13C3_PFBS		68	25-150
13C3_PFHxS		83	25-150
13C3-HFPO-DA		56	25-150
13C4_PFBA		40	25-150
13C4_PFHpA		75	25-150
13C5_PFHxA		68	25-150
13C5_PFPeA		56	25-150
13C6_PFDA		64	25-150
13C7_PFUdA		69	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21007-020**

Description: **MW-22-150_111924** Matrix: **Aqueous**

Date Sampled: **11/19/2024 1345** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/18/2024 1951	TAD	12/13/2024 1109	21259

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		79	25-150
13C8_PFOS		74	25-150
13C8_PFOSA		65	10-150
13C9_PFNA		76	25-150
d5-EtFOSAA		80	25-150
d3-MeFOSAA		74	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
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W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21007-021**

Description: **MW-22-151_111924** Matrix: **Aqueous**

Date Sampled: **11/19/2024 1500** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/18/2024 2002	TAD	12/13/2024 1109	21259

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		40	2.4	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		40	3.3	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		40	8.0	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		40	10	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	40	4.4	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		40	10	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		40	2.4	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		40	3.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		40	4.7	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**6.7**	**J**	**20**	**2.1**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		20	3.9	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		20	2.5	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		20	3.6	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		20	3.1	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		20	3.0	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**3.5**	**J**	**20**	**2.8**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**9.5**	**J**	**20**	**3.0**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		20	2.6	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		20	2.4	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**4.0**	**J**	**20**	**2.2**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		20	3.4	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		20	2.3	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**15**	**J**	**20**	**4.1**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**12**	**J**	**20**	**2.7**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		20	3.0	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		20	2.6	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		20	3.1	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	167	25-150
13C2_6:2FTS		111	25-150
13C2_8:2FTS		79	25-150
13C2_PFDoA		75	25-150
13C2_PFTeDA		69	25-150
13C3_PFBS		72	25-150
13C3_PFHxS		82	25-150
13C3-HFPO-DA		72	25-150
13C4_PFBA		71	25-150
13C4_PFHpA		80	25-150
13C5_PFHxA		80	25-150
13C5_PFPeA		79	25-150
13C6_PFDA		65	25-150
13C7_PFUdA		76	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21007-021**

Description: **MW-22-151_111924** Matrix: **Aqueous**

Date Sampled: **11/19/2024 1500** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/18/2024 2002	TAD	12/13/2024 1109	21259

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		71	25-150
13C8_PFOS		78	25-150
13C8_PFOSA		72	10-150
13C9_PFNA		77	25-150
d5-EtFOSAA		79	25-150
d3-MeFOSAA		80	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
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S = MS/MSD failure

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Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21007-022**

Description: **EB-04_111924** Matrix: **Aqueous**

Date Sampled: **11/19/2024 1545** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/18/2024 2012	TAD	12/13/2024 1109	21259

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.3	0.44	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.3	0.61	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.3	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.3	0.80	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.3	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.3	0.44	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.3	0.69	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.3	0.85	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.7	0.38	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.7	0.71	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.7	0.46	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.7	0.65	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.7	0.56	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.7	0.54	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.7	0.51	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		3.7	0.55	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.7	0.48	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.7	0.43	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.7	0.41	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.7	0.63	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.7	0.42	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.7	0.76	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.7	0.50	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.7	0.55	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.7	0.48	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.7	0.57	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.7	1.8	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		82	25-150
13C2_6:2FTS		93	25-150
13C2_8:2FTS		77	25-150
13C2_PFDoA		71	25-150
13C2_PFTeDA		68	25-150
13C3_PFBS		78	25-150
13C3_PFHxS		84	25-150
13C3-HFPO-DA		82	25-150
13C4_PFBA		81	25-150
13C4_PFHpA		85	25-150
13C5_PFHxA		77	25-150
13C5_PFPeA		82	25-150
13C6_PFDA		66	25-150
13C7_PFUdA		67	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
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H = Out of holding time
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S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21007-022**

Description: **EB-04_111924** Matrix: **Aqueous**

Date Sampled: **11/19/2024 1545** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/18/2024 2012	TAD	12/13/2024 1109	21259

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		88	25-150
13C8_PFOS		73	25-150
13C8_PFOSA		67	10-150
13C9_PFNA		80	25-150
d5-EtFOSAA		75	25-150
d3-MeFOSAA		79	25-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
ND = Not detected at or above the DL	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis			S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21007-023**

Description: **MW-22-152_112024** Matrix: **Aqueous**

Date Sampled: **11/20/2024 1130** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/18/2024 2022	TAD	12/13/2024 1109	21259

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.8	0.41	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.8	0.56	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.8	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		6.8	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		6.8	0.74	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.8	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.8	0.41	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.8	0.63	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.8	0.79	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**16**		**3.4**	**0.35**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.4	0.66	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.4	0.42	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.4	0.60	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.4	0.52	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.4	0.50	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**4.5**		**3.4**	**0.47**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**6.6**		**3.4**	**0.51**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.4	0.44	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.4	0.40	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**1.6**	**J**	**3.4**	**0.38**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**3.5**		**3.4**	**0.58**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.4	0.39	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**6.4**		**3.4**	**0.70**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**5.5**		**3.4**	**0.46**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.4	0.53	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.4	1.7	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		116	25-150
13C2_6:2FTS		106	25-150
13C2_8:2FTS		82	25-150
13C2_PFDoA		66	25-150
13C2_PFTeDA		62	25-150
13C3_PFBS		74	25-150
13C3_PFHxS		83	25-150
13C3-HFPO-DA		79	25-150
13C4_PFBA		58	25-150
13C4_PFHpA		82	25-150
13C5_PFHxA		84	25-150
13C5_PFPeA		76	25-150
13C6_PFDA		69	25-150
13C7_PFUdA		67	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21007-023**

Description: **MW-22-152_112024** Matrix: **Aqueous**

Date Sampled: **11/20/2024 1130** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/18/2024 2022	TAD	12/13/2024 1109	21259

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		78	25-150
13C8_PFOS		69	25-150
13C8_PFOSA		68	10-150
13C9_PFNA		79	25-150
d5-EtFOSAA		75	25-150
d3-MeFOSAA		77	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21007-024**

Description: **DUP-09_112024** Matrix: **Aqueous**

Date Sampled: **11/20/2024** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/18/2024 2032	TAD	12/13/2024 1109	21259

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		80	4.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		80	6.6	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		80	16	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		80	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		80	8.7	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		80	21	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		80	4.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		80	7.5	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		80	9.3	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**18**	**J**	**40**	**4.1**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		40	7.8	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		40	5.0	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		40	7.1	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		40	6.1	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		40	5.9	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**5.9**	**J**	**40**	**5.5**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		40	6.0	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		40	5.2	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		40	4.7	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		40	4.5	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		40	6.9	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		40	4.6	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**9.4**	**J**	**40**	**8.3**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**6.6**	**J**	**40**	**5.4**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		40	6.0	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		40	5.3	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		40	6.3	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		40	20	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		98	25-150
13C2_6:2FTS		102	25-150
13C2_8:2FTS		76	25-150
13C2_PFDoA		73	25-150
13C2_PFTeDA		67	25-150
13C3_PFBS		75	25-150
13C3_PFHxS		83	25-150
13C3-HFPO-DA		85	25-150
13C4_PFBA		79	25-150
13C4_PFHpA		81	25-150
13C5_PFHxA		86	25-150
13C5_PFPeA		85	25-150
13C6_PFDA		70	25-150
13C7_PFUdA		75	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis, US. Inc.** Laboratory ID: **ZK21007-024**

Description: **DUP-09_112024** Matrix: **Aqueous**

Date Sampled: **11/20/2024** Project Name: **RACER Lansing GWS**

Date Received: **11/21/2024** Project Number: **30214036**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	12/18/2024 2032	TAD	12/13/2024 1109	21259

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		88	25-150
13C8_PFOS		77	25-150
13C8_PFOSA		64	10-150
13C9_PFNA		76	25-150
d5-EtFOSAA		83	25-150
d3-MeFOSAA		79	25-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
ND = Not detected at or above the DL	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis			S = MS/MSD failure

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QC Summary

PFAS by LC/MS/MS - MB

Sample ID: ZQ21136-001
Batch: 21136
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/09/2024 1046

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
9Cl-PF3ONS	ND		1	8.0	0.48	ng/L	12/11/2024 2134
11Cl-PF3OUdS	ND		1	8.0	0.66	ng/L	12/11/2024 2134
8:2 FTS	ND		1	8.0	1.6	ng/L	12/11/2024 2134
6:2 FTS	ND		1	8.0	2.0	ng/L	12/11/2024 2134
4:2 FTS	ND		1	8.0	0.87	ng/L	12/11/2024 2134
GenX	ND		1	8.0	2.1	ng/L	12/11/2024 2134
ADONA	ND		1	8.0	0.48	ng/L	12/11/2024 2134
EtFOSAA	ND		1	8.0	0.75	ng/L	12/11/2024 2134
MeFOSAA	ND		1	8.0	0.93	ng/L	12/11/2024 2134
PFBS	ND		1	4.0	0.41	ng/L	12/11/2024 2134
PFDS	ND		1	4.0	0.78	ng/L	12/11/2024 2134
PFHpS	ND		1	4.0	0.50	ng/L	12/11/2024 2134
PFNS	ND		1	4.0	0.71	ng/L	12/11/2024 2134
PFOSA	ND		1	4.0	0.61	ng/L	12/11/2024 2134
PFPeS	ND		1	4.0	0.59	ng/L	12/11/2024 2134
PFHxS	ND		1	4.0	0.55	ng/L	12/11/2024 2134
PFBA	ND		1	4.0	0.60	ng/L	12/11/2024 2134
PFDA	ND		1	4.0	0.52	ng/L	12/11/2024 2134
PFDoA	ND		1	4.0	0.47	ng/L	12/11/2024 2134
PFHpA	ND		1	4.0	0.45	ng/L	12/11/2024 2134
PFHxA	ND		1	4.0	0.69	ng/L	12/11/2024 2134
PFNA	ND		1	4.0	0.46	ng/L	12/11/2024 2134
PFOA	ND		1	4.0	0.83	ng/L	12/11/2024 2134
PFPeA	ND		1	4.0	0.54	ng/L	12/11/2024 2134
PFTeDA	ND		1	4.0	0.60	ng/L	12/11/2024 2134
PFTrDA	ND		1	4.0	0.53	ng/L	12/11/2024 2134
PFUdA	ND		1	4.0	0.63	ng/L	12/11/2024 2134
PFOS	ND		1	4.0	2.0	ng/L	12/11/2024 2134

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		80	25-150
13C2_6:2FTS		123	25-150
13C2_8:2FTS		81	25-150
13C2_PFDoA		69	25-150
13C2_PFTeDA		74	25-150
13C3_PFBS		77	25-150
13C3_PFHxS		74	25-150
13C3-HFPO-DA		84	25-150
13C4_PFBA		74	25-150
13C4_PFHpA		69	25-150
13C5_PFHxA		71	25-150
13C5_PFPeA		70	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: ZQ21136-001
Batch: 21136
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/09/2024 1046

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		72	25-150
13C7_PFUdA		72	25-150
13C8_PFOA		73	25-150
13C8_PFOS		81	25-150
13C8_PFOSA		72	10-150
13C9_PFNA		77	25-150
d5-EtFOSAA		89	25-150
d3-MeFOSAA		88	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ21136-002
Batch: 21136
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/09/2024 1046

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	7.5	8.0		1	107	50-150	12/11/2024 2144
11Cl-PF3OUdS	7.5	7.6		1	102	50-150	12/11/2024 2144
8:2 FTS	7.7	8.6		1	113	50-150	12/11/2024 2144
6:2 FTS	7.6	8.4		1	111	50-150	12/11/2024 2144
4:2 FTS	7.5	7.8		1	105	50-150	12/11/2024 2144
GenX	16	15		1	92	50-150	12/11/2024 2144
ADONA	7.5	9.5		1	127	50-150	12/11/2024 2144
EtFOSAA	8.0	7.2		1	90	50-150	12/11/2024 2144
MeFOSAA	8.0	7.7		1	97	50-150	12/11/2024 2144
PFBS	7.1	8.4		1	119	50-150	12/11/2024 2144
PFDS	7.7	8.0		1	103	50-150	12/11/2024 2144
PFHpS	7.6	9.6		1	126	50-150	12/11/2024 2144
PFNS	7.7	8.6		1	112	50-150	12/11/2024 2144
PFOSA	8.0	8.4		1	106	50-150	12/11/2024 2144
PFPeS	7.5	9.7		1	129	50-150	12/11/2024 2144
PFHxS	7.3	8.1		1	111	50-150	12/11/2024 2144
PFBA	8.0	9.6		1	120	50-150	12/11/2024 2144
PFDA	8.0	11		1	133	50-150	12/11/2024 2144
PFDoA	8.0	11		1	134	50-150	12/11/2024 2144
PFHpA	8.0	9.6		1	121	50-150	12/11/2024 2144
PFHxA	8.0	9.2		1	114	50-150	12/11/2024 2144
PFNA	8.0	9.5		1	119	50-150	12/11/2024 2144
PFOA	8.0	9.6		1	120	50-150	12/11/2024 2144
PFPeA	8.0	8.7		1	108	50-150	12/11/2024 2144
PFTeDA	8.0	9.5		1	119	50-150	12/11/2024 2144
PFTrDA	8.0	9.6		1	120	50-150	12/11/2024 2144
PFUdA	8.0	9.5		1	119	50-150	12/11/2024 2144
PFOS	7.4	8.4		1	113	50-150	12/11/2024 2144

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		75	25-150
13C2_6:2FTS		116	25-150
13C2_8:2FTS		83	25-150
13C2_PFDoA		68	25-150
13C2_PFTeDA		74	25-150
13C3_PFBS		73	25-150
13C3_PFHxS		74	25-150
13C3-HFPO-DA		88	25-150
13C4_PFBA		73	25-150
13C4_PFHpA		69	25-150
13C5_PFHxA		73	25-150
13C5_PFPeA		80	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ21136-002
Batch: 21136
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/09/2024 1046

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		70	25-150
13C7_PFUdA		74	25-150
13C8_PFOA		77	25-150
13C8_PFOS		85	25-150
13C8_PFOSA		78	10-150
13C9_PFNA		76	25-150
d5-EtFOSAA		88	25-150
d3-MeFOSAA		94	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID: ZK21007-004MS
Batch: 21136
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/09/2024 1046

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	ND	7.2	8.0		1	111	50-150	12/11/2024 2314
11Cl-PF3OUdS	ND	7.3	8.4		1	114	50-150	12/11/2024 2314
8:2 FTS	ND	7.4	8.9		1	120	50-150	12/11/2024 2314
6:2 FTS	ND	7.4	6.1		1	83	50-150	12/11/2024 2314
4:2 FTS	ND	7.3	7.0		1	97	50-150	12/11/2024 2314
GenX	ND	16	15		1	96	50-150	12/11/2024 2314
ADONA	ND	7.3	8.7		1	119	50-150	12/11/2024 2314
EtFOSAA	ND	7.8	7.1		1	92	50-150	12/11/2024 2314
MeFOSAA	ND	7.8	8.6		1	111	50-150	12/11/2024 2314
PFBS	ND	6.9	7.5		1	110	50-150	12/11/2024 2314
PFDS	ND	7.5	8.1		1	108	50-150	12/11/2024 2314
PFHpS	ND	7.4	7.7		1	105	50-150	12/11/2024 2314
PFNS	ND	7.5	8.1		1	109	50-150	12/11/2024 2314
PFOSA	ND	7.8	7.7		1	100	50-150	12/11/2024 2314
PFPeS	ND	7.3	7.7		1	106	50-150	12/11/2024 2314
PFHxS	ND	7.1	7.8		1	111	50-150	12/11/2024 2314
PFBA	1.3	7.8	10		1	114	50-150	12/11/2024 2314
PFDA	ND	7.8	9.0		1	116	50-150	12/11/2024 2314
PFDoA	ND	7.8	9.2		1	118	50-150	12/11/2024 2314
PFHpA	ND	7.8	8.8		1	113	50-150	12/11/2024 2314
PFHxA	ND	7.8	8.7		1	111	50-150	12/11/2024 2314
PFNA	ND	7.8	8.6		1	110	50-150	12/11/2024 2314
PFOA	ND	7.8	8.1		1	104	50-150	12/11/2024 2314
PFPeA	ND	7.8	8.8		1	113	50-150	12/11/2024 2314
PFTeDA	ND	7.8	9.2		1	119	50-150	12/11/2024 2314
PFTrDA	ND	7.8	9.1		1	117	50-150	12/11/2024 2314
PFUdA	ND	7.8	8.5		1	110	50-150	12/11/2024 2314
PFOS	ND	7.2	8.2		1	113	50-150	12/11/2024 2314

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		102	25-150
13C2_6:2FTS		111	25-150
13C2_8:2FTS		71	25-150
13C2_PFDoA		68	25-150
13C2_PFTeDA		75	25-150
13C3_PFBS		79	25-150
13C3_PFHxS		73	25-150
13C3-HFPO-DA		85	25-150
13C4_PFBA		62	25-150
13C4_PFHpA		70	25-150
13C5_PFHxA		74	25-150
13C5_PFPeA		74	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID: ZK21007-004MS
Batch: 21136
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/09/2024 1046

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		70	25-150
13C7_PFUdA		74	25-150
13C8_PFOA		80	25-150
13C8_PFOS		80	25-150
13C8_PFOSA		84	10-150
13C9_PFNA		74	25-150
d5-EtFOSAA		87	25-150
d3-MeFOSAA		84	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MSD

Sample ID: ZK21007-004MD
Batch: 21136
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/09/2024 1046

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
9Cl-PF3ONS	ND	7.4	7.9		1	106	2.1	50-150	30	12/11/2024 2324
11Cl-PF3OUdS	ND	7.5	7.7		1	102	8.7	50-150	30	12/11/2024 2324
8:2 FTS	ND	7.7	8.6		1	112	4.3	50-150	30	12/11/2024 2324
6:2 FTS	ND	7.6	7.3		1	96	17	50-150	30	12/11/2024 2324
4:2 FTS	ND	7.5	7.8		1	104	10	50-150	30	12/11/2024 2324
GenX	ND	16	16		1	99	5.6	50-150	30	12/11/2024 2324
ADONA	ND	7.5	8.9		1	119	2.6	50-150	30	12/11/2024 2324
EtFOSAA	ND	8.0	8.0		1	100	12	50-150	30	12/11/2024 2324
MeFOSAA	ND	8.0	7.4		1	93	15	50-150	30	12/11/2024 2324
PFBS	ND	7.1	8.2		1	116	8.1	50-150	30	12/11/2024 2324
PFDS	ND	7.7	8.4		1	109	3.5	50-150	30	12/11/2024 2324
PFHpS	ND	7.6	9.7		1	128	22	50-150	30	12/11/2024 2324
PFNS	ND	7.7	7.9		1	102	3.0	50-150	30	12/11/2024 2324
PFOSA	ND	8.0	8.3		1	104	7.3	50-150	30	12/11/2024 2324
PFPeS	ND	7.5	8.4		1	112	8.2	50-150	30	12/11/2024 2324
PFHxS	ND	7.3	8.6		1	119	9.5	50-150	30	12/11/2024 2324
PFBA	1.3	8.0	11		1	120	7.5	50-150	30	12/11/2024 2324
PFDA	ND	8.0	10		1	125	11	50-150	30	12/11/2024 2324
PFDoA	ND	8.0	9.7		1	121	5.2	50-150	30	12/11/2024 2324
PFHpA	ND	8.0	9.1		1	113	3.4	50-150	30	12/11/2024 2324
PFHxA	ND	8.0	10		1	127	16	50-150	30	12/11/2024 2324
PFNA	ND	8.0	9.4		1	118	9.5	50-150	30	12/11/2024 2324
PFOA	ND	8.0	8.5		1	107	5.2	50-150	30	12/11/2024 2324
PFPeA	ND	8.0	9.4		1	118	7.4	50-150	30	12/11/2024 2324
PFTeDA	ND	8.0	9.2		1	115	0.14	50-150	30	12/11/2024 2324
PFTrDA	ND	8.0	10		1	126	10	50-150	30	12/11/2024 2324
PFUdA	ND	8.0	8.8		1	110	3.1	50-150	30	12/11/2024 2324
PFOS	ND	7.4	7.8		1	105	4.4	50-150	30	12/11/2024 2324

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		95	25-150
13C2_6:2FTS		103	25-150
13C2_8:2FTS		77	25-150
13C2_PFDoA		64	25-150
13C2_PFTeDA		78	25-150
13C3_PFBS		78	25-150
13C3_PFHxS		70	25-150
13C3-HFPO-DA		86	25-150
13C4_PFBA		58	25-150
13C4_PFHpA		70	25-150
13C5_PFHxA		73	25-150
13C5_PFPeA		75	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MSD

Sample ID: ZK21007-004MD
Batch: 21136
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/09/2024 1046

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		73	25-150
13C7_PFUdA		75	25-150
13C8_PFOA		79	25-150
13C8_PFOS		83	25-150
13C8_PFOSA		87	10-150
13C9_PFNA		74	25-150
d5-EtFOSAA		89	25-150
d3-MeFOSAA		93	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: ZQ21187-001
Batch: 21187
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/11/2024 1345

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
9Cl-PF3ONS	ND		1	8.0	0.48	ng/L	12/12/2024 1458
11Cl-PF3OUdS	ND		1	8.0	0.66	ng/L	12/12/2024 1458
8:2 FTS	ND		1	8.0	1.6	ng/L	12/12/2024 1458
6:2 FTS	ND		1	8.0	2.0	ng/L	12/12/2024 1458
4:2 FTS	ND		1	8.0	0.87	ng/L	12/12/2024 1458
GenX	ND		1	8.0	2.1	ng/L	12/12/2024 1458
ADONA	ND		1	8.0	0.48	ng/L	12/12/2024 1458
EtFOSAA	ND		1	8.0	0.75	ng/L	12/12/2024 1458
MeFOSAA	ND		1	8.0	0.93	ng/L	12/12/2024 1458
PFBS	ND		1	4.0	0.41	ng/L	12/12/2024 1458
PFDS	ND		1	4.0	0.78	ng/L	12/12/2024 1458
PFHpS	ND		1	4.0	0.50	ng/L	12/12/2024 1458
PFNS	ND		1	4.0	0.71	ng/L	12/12/2024 1458
PFOSA	ND		1	4.0	0.61	ng/L	12/12/2024 1458
PFPeS	ND		1	4.0	0.59	ng/L	12/12/2024 1458
PFHxS	ND		1	4.0	0.55	ng/L	12/12/2024 1458
PFBA	ND		1	4.0	0.60	ng/L	12/12/2024 1458
PFDA	ND		1	4.0	0.52	ng/L	12/12/2024 1458
PFDoA	ND		1	4.0	0.47	ng/L	12/12/2024 1458
PFHpA	ND		1	4.0	0.45	ng/L	12/12/2024 1458
PFHxA	ND		1	4.0	0.69	ng/L	12/12/2024 1458
PFNA	ND		1	4.0	0.46	ng/L	12/12/2024 1458
PFOA	ND		1	4.0	0.83	ng/L	12/12/2024 1458
PFPeA	ND		1	4.0	0.54	ng/L	12/12/2024 1458
PFTeDA	ND		1	4.0	0.60	ng/L	12/12/2024 1458
PFTrDA	ND		1	4.0	0.53	ng/L	12/12/2024 1458
PFUdA	ND		1	4.0	0.63	ng/L	12/12/2024 1458
PFOS	ND		1	4.0	2.0	ng/L	12/12/2024 1458

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		82	25-150
13C2_6:2FTS		86	25-150
13C2_8:2FTS		85	25-150
13C2_PFDoA		79	25-150
13C2_PFTeDA		72	25-150
13C3_PFBS		76	25-150
13C3_PFHxS		78	25-150
13C3-HFPO-DA		91	25-150
13C4_PFBA		78	25-150
13C4_PFHpA		78	25-150
13C5_PFHxA		82	25-150
13C5_PFPeA		82	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: ZQ21187-001
Batch: 21187
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/11/2024 1345

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		73	25-150
13C7_PFUdA		71	25-150
13C8_PFOA		82	25-150
13C8_PFOS		80	25-150
13C8_PFOSA		67	10-150
13C9_PFNA		78	25-150
d5-EtFOSAA		75	25-150
d3-MeFOSAA		81	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ21187-002
Batch: 21187
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/11/2024 1345

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	7.5	7.6		1	102	50-150	12/12/2024 1508
11Cl-PF3OUdS	7.5	7.5		1	100	50-150	12/12/2024 1508
8:2 FTS	7.7	6.5		1	85	50-150	12/12/2024 1508
6:2 FTS	7.6	7.6		1	101	50-150	12/12/2024 1508
4:2 FTS	7.5	8.0		1	107	50-150	12/12/2024 1508
GenX	16	15		1	96	50-150	12/12/2024 1508
ADONA	7.5	8.4		1	112	50-150	12/12/2024 1508
EtFOSAA	8.0	8.6		1	107	50-150	12/12/2024 1508
MeFOSAA	8.0	8.6		1	108	50-150	12/12/2024 1508
PFBS	7.1	8.1		1	115	50-150	12/12/2024 1508
PFDS	7.7	8.6		1	111	50-150	12/12/2024 1508
PFHpS	7.6	8.8		1	116	50-150	12/12/2024 1508
PFNS	7.7	7.0		1	91	50-150	12/12/2024 1508
PFOSA	8.0	8.8		1	110	50-150	12/12/2024 1508
PFPeS	7.5	8.1		1	108	50-150	12/12/2024 1508
PFHxS	7.3	7.3		1	101	50-150	12/12/2024 1508
PFBA	8.0	8.7		1	109	50-150	12/12/2024 1508
PFDA	8.0	8.2		1	103	50-150	12/12/2024 1508
PFDoA	8.0	9.7		1	121	50-150	12/12/2024 1508
PFHpA	8.0	8.3		1	104	50-150	12/12/2024 1508
PFHxA	8.0	8.5		1	107	50-150	12/12/2024 1508
PFNA	8.0	8.5		1	106	50-150	12/12/2024 1508
PFOA	8.0	7.3		1	91	50-150	12/12/2024 1508
PFPeA	8.0	8.8		1	111	50-150	12/12/2024 1508
PFTeDA	8.0	8.5		1	106	50-150	12/12/2024 1508
PFTrDA	8.0	9.4		1	118	50-150	12/12/2024 1508
PFUdA	8.0	9.3		1	116	50-150	12/12/2024 1508
PFOS	7.4	7.7		1	104	50-150	12/12/2024 1508

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		81	25-150
13C2_6:2FTS		88	25-150
13C2_8:2FTS		75	25-150
13C2_PFDoA		73	25-150
13C2_PFTeDA		75	25-150
13C3_PFBS		83	25-150
13C3_PFHxS		74	25-150
13C3-HFPO-DA		92	25-150
13C4_PFBA		82	25-150
13C4_PFHpA		80	25-150
13C5_PFHxA		82	25-150
13C5_PFPeA		81	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ21187-002
Batch: 21187
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/11/2024 1345

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		76	25-150
13C7_PFUdA		75	25-150
13C8_PFOA		95	25-150
13C8_PFOS		81	25-150
13C8_PFOSA		63	10-150
13C9_PFNA		82	25-150
d5-EtFOSAA		80	25-150
d3-MeFOSAA		82	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - Duplicate

Sample ID: ZK21007-003DU
Batch: 21187
Analytical Method: PFAS by ID SOP
Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/11/2024 1345

Parameter	Sample Amount (ng/L)	Result (ng/L)	Q	Dil	% RPD	%RPD Limit	Analysis Date
9Cl-PF3ONS	ND	ND		1	0.00	20	12/12/2024 1708
11Cl-PF3OUdS	ND	ND		1	0.00	20	12/12/2024 1708
8:2 FTS	ND	ND		1	0.00	20	12/12/2024 1708
6:2 FTS	ND	ND		1	0.00	20	12/12/2024 1708
4:2 FTS	ND	ND		1	0.00	20	12/12/2024 1708
GenX	ND	ND		1	0.00	20	12/12/2024 1708
ADONA	ND	ND		1	0.00	20	12/12/2024 1708
EtFOSAA	ND	ND		1	0.00	20	12/12/2024 1708
MeFOSAA	ND	ND		1	0.00	20	12/12/2024 1708
PFBS	1.8	1.7	J	1	3.5	20	12/12/2024 1708
PFDS	ND	ND		1	0.00	20	12/12/2024 1708
PFHpS	ND	ND		1	0.00	20	12/12/2024 1708
PFNS	ND	ND		1	0.00	20	12/12/2024 1708
PFOSA	ND	ND		1	0.00	20	12/12/2024 1708
PFPeS	ND	ND		1	0.00	20	12/12/2024 1708
PFHxS	ND	ND		1	0.00	20	12/12/2024 1708
PFBA	5.5	5.4		1	2.1	20	12/12/2024 1708
PFDA	ND	ND		1	0.00	20	12/12/2024 1708
PFDoA	ND	ND		1	0.00	20	12/12/2024 1708
PFHpA	1.2	1.4	J	1	11	20	12/12/2024 1708
PFHxA	2.9	2.7	J	1	7.5	20	12/12/2024 1708
PFNA	ND	ND		1	0.00	20	12/12/2024 1708
PFOA	1.3	1.4	J	1	7.5	20	12/12/2024 1708
PFPeA	2.8	2.7	J	1	4.4	20	12/12/2024 1708
PFTeDA	ND	ND		1	0.00	20	12/12/2024 1708
PFTrDA	ND	ND		1	0.00	20	12/12/2024 1708
PFUdA	ND	ND		1	0.00	20	12/12/2024 1708
PFOS	ND	ND		1	0.00	20	12/12/2024 1708

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		105	25-150
13C2_6:2FTS		103	25-150
13C2_8:2FTS		70	25-150
13C2_PFDoA		85	25-150
13C2_PFTeDA		77	25-150
13C3_PFBS		84	25-150
13C3_PFHxS		78	25-150
13C3-HFPO-DA		87	25-150
13C4_PFBA		65	25-150
13C4_PFHpA		80	25-150
13C5_PFHxA		90	25-150
13C5_PFPeA		84	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - Duplicate

Sample ID: ZK21007-003DU
Batch: 21187
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/11/2024 1345

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		79	25-150
13C7_PFUdA		76	25-150
13C8_PFOA		92	25-150
13C8_PFOS		83	25-150
13C8_PFOSA		75	10-150
13C9_PFNA		81	25-150
d5-EtFOSAA		83	25-150
d3-MeFOSAA		85	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: ZQ21208-001
Batch: 21208
Analytical Method: PFAS by ID SOP
Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/12/2024 0956

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
9Cl-PF3ONS	ND		1	8.0	0.48	ng/L	12/14/2024 0111
11Cl-PF3OUdS	ND		1	8.0	0.66	ng/L	12/14/2024 0111
8:2 FTS	ND		1	8.0	1.6	ng/L	12/14/2024 0111
6:2 FTS	ND		1	8.0	2.0	ng/L	12/14/2024 0111
4:2 FTS	ND		1	8.0	0.87	ng/L	12/14/2024 0111
GenX	ND		1	8.0	2.1	ng/L	12/14/2024 0111
ADONA	ND		1	8.0	0.48	ng/L	12/14/2024 0111
EtFOSAA	ND		1	8.0	0.75	ng/L	12/14/2024 0111
MeFOSAA	ND		1	8.0	0.93	ng/L	12/14/2024 0111
PFBS	ND		1	4.0	0.41	ng/L	12/14/2024 0111
PFDS	ND		1	4.0	0.78	ng/L	12/14/2024 0111
PFHpS	ND		1	4.0	0.50	ng/L	12/14/2024 0111
PFNS	ND		1	4.0	0.71	ng/L	12/14/2024 0111
PFOSA	ND		1	4.0	0.61	ng/L	12/14/2024 0111
PFPeS	ND		1	4.0	0.59	ng/L	12/14/2024 0111
PFHxS	ND		1	4.0	0.55	ng/L	12/14/2024 0111
PFBA	ND		1	4.0	0.60	ng/L	12/14/2024 0111
PFDA	ND		1	4.0	0.52	ng/L	12/14/2024 0111
PFDoA	ND		1	4.0	0.47	ng/L	12/14/2024 0111
PFHpA	ND		1	4.0	0.45	ng/L	12/14/2024 0111
PFHxA	ND		1	4.0	0.69	ng/L	12/14/2024 0111
PFNA	ND		1	4.0	0.46	ng/L	12/14/2024 0111
PFOA	ND		1	4.0	0.83	ng/L	12/14/2024 0111
PFPeA	ND		1	4.0	0.54	ng/L	12/14/2024 0111
PFTeDA	ND		1	4.0	0.60	ng/L	12/14/2024 0111
PFTrDA	ND		1	4.0	0.53	ng/L	12/14/2024 0111
PFUdA	ND		1	4.0	0.63	ng/L	12/14/2024 0111
PFOS	ND		1	4.0	2.0	ng/L	12/14/2024 0111

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		96	25-150
13C2_6:2FTS		99	25-150
13C2_8:2FTS		85	25-150
13C2_PFDoA		74	25-150
13C2_PFTeDA		78	25-150
13C3_PFBS		78	25-150
13C3_PFHxS		81	25-150
13C3-HFPO-DA		89	25-150
13C4_PFBA		83	25-150
13C4_PFHpA		79	25-150
13C5_PFHxA		76	25-150
13C5_PFPeA		91	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: ZQ21208-001
Batch: 21208
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/12/2024 0956

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		82	25-150
13C7_PFUdA		79	25-150
13C8_PFOA		88	25-150
13C8_PFOS		87	25-150
13C8_PFOSA		79	10-150
13C9_PFNA		82	25-150
d5-EtFOSAA		82	25-150
d3-MeFOSAA		89	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ21208-002
Batch: 21208
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/12/2024 0956

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	7.5	8.3		1	111	50-150	12/14/2024 0121
11Cl-PF3OUdS	7.5	8.0		1	106	50-150	12/14/2024 0121
8:2 FTS	7.7	8.4		1	110	50-150	12/14/2024 0121
6:2 FTS	7.6	7.7		1	102	50-150	12/14/2024 0121
4:2 FTS	7.5	7.3		1	97	50-150	12/14/2024 0121
GenX	16	13		1	84	50-150	12/14/2024 0121
ADONA	7.5	7.5		1	99	50-150	12/14/2024 0121
EtFOSAA	8.0	7.6		1	95	50-150	12/14/2024 0121
MeFOSAA	8.0	8.0		1	100	50-150	12/14/2024 0121
PFBS	7.1	7.3		1	103	50-150	12/14/2024 0121
PFDS	7.7	8.1		1	105	50-150	12/14/2024 0121
PFHpS	7.6	7.3		1	96	50-150	12/14/2024 0121
PFNS	7.7	6.8		1	88	50-150	12/14/2024 0121
PFOSA	8.0	7.6		1	95	50-150	12/14/2024 0121
PFPeS	7.5	7.3		1	97	50-150	12/14/2024 0121
PFHxS	7.3	6.9		1	94	50-150	12/14/2024 0121
PFBA	8.0	7.9		1	99	50-150	12/14/2024 0121
PFDA	8.0	8.1		1	101	50-150	12/14/2024 0121
PFDoA	8.0	8.0		1	99	50-150	12/14/2024 0121
PFHpA	8.0	9.2		1	116	50-150	12/14/2024 0121
PFHxA	8.0	8.0		1	100	50-150	12/14/2024 0121
PFNA	8.0	8.2		1	102	50-150	12/14/2024 0121
PFOA	8.0	7.4		1	93	50-150	12/14/2024 0121
PFPeA	8.0	8.4		1	105	50-150	12/14/2024 0121
PFTeDA	8.0	8.4		1	105	50-150	12/14/2024 0121
PFTrDA	8.0	6.9		1	86	50-150	12/14/2024 0121
PFUdA	8.0	7.7		1	97	50-150	12/14/2024 0121
PFOS	7.4	7.6		1	102	50-150	12/14/2024 0121

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		93	25-150
13C2_6:2FTS		96	25-150
13C2_8:2FTS		92	25-150
13C2_PFDoA		85	25-150
13C2_PFTeDA		85	25-150
13C3_PFBS		85	25-150
13C3_PFHxS		97	25-150
13C3-HFPO-DA		108	25-150
13C4_PFBA		89	25-150
13C4_PFHpA		82	25-150
13C5_PFHxA		84	25-150
13C5_PFPeA		90	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ21208-002
Batch: 21208
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/12/2024 0956

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		84	25-150
13C7_PFUdA		85	25-150
13C8_PFOA		97	25-150
13C8_PFOS		85	25-150
13C8_PFOSA		80	10-150
13C9_PFNA		84	25-150
d5-EtFOSAA		93	25-150
d3-MeFOSAA		94	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: ZQ21259-001
Batch: 21259
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/13/2024 1109

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
9Cl-PF3ONS	ND		1	8.0	0.48	ng/L	12/18/2024 1710
11Cl-PF3OUdS	ND		1	8.0	0.66	ng/L	12/18/2024 1710
8:2 FTS	ND		1	8.0	1.6	ng/L	12/18/2024 1710
6:2 FTS	ND		1	8.0	2.0	ng/L	12/18/2024 1710
4:2 FTS	ND		1	8.0	0.87	ng/L	12/18/2024 1710
GenX	ND		1	8.0	2.1	ng/L	12/18/2024 1710
ADONA	ND		1	8.0	0.48	ng/L	12/18/2024 1710
EtFOSAA	ND		1	8.0	0.75	ng/L	12/18/2024 1710
MeFOSAA	ND		1	8.0	0.93	ng/L	12/18/2024 1710
PFBS	ND		1	4.0	0.41	ng/L	12/18/2024 1710
PFDS	ND		1	4.0	0.78	ng/L	12/18/2024 1710
PFHpS	ND		1	4.0	0.50	ng/L	12/18/2024 1710
PFNS	ND		1	4.0	0.71	ng/L	12/18/2024 1710
PFOSA	ND		1	4.0	0.61	ng/L	12/18/2024 1710
PFPeS	ND		1	4.0	0.59	ng/L	12/18/2024 1710
PFHxS	ND		1	4.0	0.55	ng/L	12/18/2024 1710
PFBA	ND		1	4.0	0.60	ng/L	12/18/2024 1710
PFDA	ND		1	4.0	0.52	ng/L	12/18/2024 1710
PFDoA	ND		1	4.0	0.47	ng/L	12/18/2024 1710
PFHpA	ND		1	4.0	0.45	ng/L	12/18/2024 1710
PFHxA	ND		1	4.0	0.69	ng/L	12/18/2024 1710
PFNA	ND		1	4.0	0.46	ng/L	12/18/2024 1710
PFOA	ND		1	4.0	0.83	ng/L	12/18/2024 1710
PFPeA	ND		1	4.0	0.54	ng/L	12/18/2024 1710
PFTeDA	ND		1	4.0	0.60	ng/L	12/18/2024 1710
PFTrDA	ND		1	4.0	0.53	ng/L	12/18/2024 1710
PFUdA	ND		1	4.0	0.63	ng/L	12/18/2024 1710
PFOS	ND		1	4.0	2.0	ng/L	12/18/2024 1710

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		76	25-150
13C2_6:2FTS		83	25-150
13C2_8:2FTS		76	25-150
13C2_PFDoA		67	25-150
13C2_PFTeDA		63	25-150
13C3_PFBS		67	25-150
13C3_PFHxS		67	25-150
13C3-HFPO-DA		69	25-150
13C4_PFBA		71	25-150
13C4_PFHpA		79	25-150
13C5_PFHxA		68	25-150
13C5_PFPeA		75	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: ZQ21259-001
Batch: 21259
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/13/2024 1109

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		67	25-150
13C7_PFUdA		60	25-150
13C8_PFOA		70	25-150
13C8_PFOS		70	25-150
13C8_PFOSA		55	10-150
13C9_PFNA		71	25-150
d5-EtFOSAA		69	25-150
d3-MeFOSAA		71	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ21259-002
Batch: 21259
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/13/2024 1109

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	7.5	7.6		1	102	50-150	12/18/2024 1721
11Cl-PF3OUdS	7.5	6.8		1	90	50-150	12/18/2024 1721
8:2 FTS	7.7	7.6		1	99	50-150	12/18/2024 1721
6:2 FTS	7.6	6.5		1	86	50-150	12/18/2024 1721
4:2 FTS	7.5	7.4		1	99	50-150	12/18/2024 1721
GenX	16	13		1	80	50-150	12/18/2024 1721
ADONA	7.5	7.5		1	100	50-150	12/18/2024 1721
EtFOSAA	8.0	6.9		1	86	50-150	12/18/2024 1721
MeFOSAA	8.0	7.9		1	99	50-150	12/18/2024 1721
PFBS	7.1	6.9		1	97	50-150	12/18/2024 1721
PFDS	7.7	7.3		1	95	50-150	12/18/2024 1721
PFHpS	7.6	7.3		1	97	50-150	12/18/2024 1721
PFNS	7.7	6.8		1	88	50-150	12/18/2024 1721
PFOSA	8.0	7.4		1	92	50-150	12/18/2024 1721
PFPeS	7.5	7.3		1	98	50-150	12/18/2024 1721
PFHxS	7.3	7.0		1	96	50-150	12/18/2024 1721
PFBA	8.0	8.1		1	101	50-150	12/18/2024 1721
PFDA	8.0	8.5		1	107	50-150	12/18/2024 1721
PFDoA	8.0	8.0		1	100	50-150	12/18/2024 1721
PFHpA	8.0	7.8		1	98	50-150	12/18/2024 1721
PFHxA	8.0	7.6		1	95	50-150	12/18/2024 1721
PFNA	8.0	8.0		1	100	50-150	12/18/2024 1721
PFOA	8.0	8.5		1	106	50-150	12/18/2024 1721
PFPeA	8.0	8.3		1	104	50-150	12/18/2024 1721
PFTeDA	8.0	8.7		1	108	50-150	12/18/2024 1721
PFTrDA	8.0	6.6		1	83	50-150	12/18/2024 1721
PFUdA	8.0	8.5		1	106	50-150	12/18/2024 1721
PFOS	7.4	8.6		1	116	50-150	12/18/2024 1721

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		93	25-150
13C2_6:2FTS		95	25-150
13C2_8:2FTS		86	25-150
13C2_PFDoA		75	25-150
13C2_PFTeDA		66	25-150
13C3_PFBS		83	25-150
13C3_PFHxS		84	25-150
13C3-HFPO-DA		94	25-150
13C4_PFBA		80	25-150
13C4_PFHpA		87	25-150
13C5_PFHxA		78	25-150
13C5_PFPeA		81	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ21259-002
Batch: 21259
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/13/2024 1109

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		69	25-150
13C7_PFUdA		74	25-150
13C8_PFOA		82	25-150
13C8_PFOS		75	25-150
13C8_PFOSA		69	10-150
13C9_PFNA		83	25-150
d5-EtFOSAA		83	25-150
d3-MeFOSAA		82	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: ZQ21432-001
Batch: 21432
Analytical Method: PFAS by ID SOP
Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/19/2024 1253

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
9Cl-PF3ONS	ND		1	8.0	0.48	ng/L	12/23/2024 2243
11Cl-PF3OUdS	ND		1	8.0	0.66	ng/L	12/23/2024 2243
8:2 FTS	ND		1	8.0	1.6	ng/L	12/23/2024 2243
6:2 FTS	ND		1	8.0	2.0	ng/L	12/23/2024 2243
4:2 FTS	ND		1	8.0	0.87	ng/L	12/23/2024 2243
GenX	ND		1	8.0	2.1	ng/L	12/23/2024 2243
ADONA	ND		1	8.0	0.48	ng/L	12/23/2024 2243
EtFOSAA	ND		1	8.0	0.75	ng/L	12/23/2024 2243
MeFOSAA	ND		1	8.0	0.93	ng/L	12/23/2024 2243
PFBS	ND		1	4.0	0.41	ng/L	12/23/2024 2243
PFDS	ND		1	4.0	0.78	ng/L	12/23/2024 2243
PFHpS	ND		1	4.0	0.50	ng/L	12/23/2024 2243
PFNS	ND		1	4.0	0.71	ng/L	12/23/2024 2243
PFOSA	ND		1	4.0	0.61	ng/L	12/23/2024 2243
PFPeS	ND		1	4.0	0.59	ng/L	12/23/2024 2243
PFHxS	ND		1	4.0	0.55	ng/L	12/23/2024 2243
PFBA	ND		1	4.0	0.60	ng/L	12/23/2024 2243
PFDA	ND		1	4.0	0.52	ng/L	12/23/2024 2243
PFDoA	ND		1	4.0	0.47	ng/L	12/23/2024 2243
PFHpA	ND		1	4.0	0.45	ng/L	12/23/2024 2243
PFHxA	ND		1	4.0	0.69	ng/L	12/23/2024 2243
PFNA	ND		1	4.0	0.46	ng/L	12/23/2024 2243
PFOA	ND		1	4.0	0.83	ng/L	12/23/2024 2243
PFPeA	ND		1	4.0	0.54	ng/L	12/23/2024 2243
PFTeDA	ND		1	4.0	0.60	ng/L	12/23/2024 2243
PFTrDA	ND		1	4.0	0.53	ng/L	12/23/2024 2243
PFUdA	ND		1	4.0	0.63	ng/L	12/23/2024 2243
PFOS	ND		1	4.0	2.0	ng/L	12/23/2024 2243

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		85	25-150
13C2_6:2FTS		84	25-150
13C2_8:2FTS		80	25-150
13C2_PFDoA		70	25-150
13C2_PFTeDA		69	25-150
13C3_PFBS		84	25-150
13C3_PFHxS		80	25-150
13C3-HFPO-DA		86	25-150
13C4_PFBA		77	25-150
13C4_PFHpA		71	25-150
13C5_PFHxA		76	25-150
13C5_PFPeA		77	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: ZQ21432-001
Batch: 21432
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/19/2024 1253

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		73	25-150
13C7_PFUdA		80	25-150
13C8_PFOA		74	25-150
13C8_PFOS		76	25-150
13C8_PFOSA		74	10-150
13C9_PFNA		80	25-150
d5-EtFOSAA		77	25-150
d3-MeFOSAA		89	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ21432-002
Batch: 21432
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/19/2024 1253

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	7.5	7.4		1	100	50-150	12/30/2024 1534
11Cl-PF3OUdS	7.5	7.5		1	99	50-150	12/30/2024 1534
8:2 FTS	7.7	8.4		1	109	50-150	12/30/2024 1534
6:2 FTS	7.6	8.5		1	112	50-150	12/30/2024 1534
4:2 FTS	7.5	7.3		1	98	50-150	12/30/2024 1534
GenX	16	15		1	95	50-150	12/30/2024 1534
ADONA	7.5	7.9		1	105	50-150	12/30/2024 1534
EtFOSAA	8.0	8.6		1	108	50-150	12/30/2024 1534
MeFOSAA	8.0	7.2		1	90	50-150	12/30/2024 1534
PFBS	7.1	7.5		1	106	50-150	12/30/2024 1534
PFDS	7.7	7.9		1	103	50-150	12/30/2024 1534
PFHpS	7.6	9.6		1	127	50-150	12/30/2024 1534
PFNS	7.7	7.8		1	101	50-150	12/30/2024 1534
PFOSA	8.0	9.0		1	112	50-150	12/30/2024 1534
PFPeS	7.5	8.1		1	109	50-150	12/30/2024 1534
PFHxS	7.3	8.4		1	115	50-150	12/30/2024 1534
PFBA	8.0	8.4		1	105	50-150	12/30/2024 1534
PFDA	8.0	8.9		1	111	50-150	12/30/2024 1534
PFDoA	8.0	8.8		1	110	50-150	12/30/2024 1534
PFHpA	8.0	7.9		1	98	50-150	12/30/2024 1534
PFHxA	8.0	9.1		1	114	50-150	12/30/2024 1534
PFNA	8.0	8.3		1	104	50-150	12/30/2024 1534
PFOA	8.0	8.7		1	108	50-150	12/30/2024 1534
PFPeA	8.0	8.5		1	106	50-150	12/30/2024 1534
PFTeDA	8.0	9.2		1	115	50-150	12/30/2024 1534
PFTrDA	8.0	7.8		1	97	50-150	12/30/2024 1534
PFUdA	8.0	8.4		1	105	50-150	12/30/2024 1534
PFOS	7.4	7.7		1	103	50-150	12/30/2024 1534

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		119	25-150
13C2_6:2FTS		100	25-150
13C2_8:2FTS		98	25-150
13C2_PFDoA		88	25-150
13C2_PFTeDA		88	25-150
13C3_PFBS		99	25-150
13C3_PFHxS		92	25-150
13C3-HFPO-DA		100	25-150
13C4_PFBA		102	25-150
13C4_PFHpA		96	25-150
13C5_PFHxA		95	25-150
13C5_PFPeA		104	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ21432-002
Batch: 21432
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/19/2024 1253

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		96	25-150
13C7_PFUdA		108	25-150
13C8_PFOA		106	25-150
13C8_PFOS		92	25-150
13C8_PFOSA		78	10-150
13C9_PFNA		100	25-150
d5-EtFOSAA		84	25-150
d3-MeFOSAA		99	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: ZQ21508-001
Batch: 21508
Analytical Method: PFAS by ID SOP
Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/23/2024 1047

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
9Cl-PF3ONS	ND		1	8.0	0.48	ng/L	12/24/2024 1923
11Cl-PF3OUdS	ND		1	8.0	0.66	ng/L	12/24/2024 1923
8:2 FTS	ND		1	8.0	1.6	ng/L	12/24/2024 1923
6:2 FTS	ND		1	8.0	2.0	ng/L	12/24/2024 1923
4:2 FTS	ND		1	8.0	0.87	ng/L	12/24/2024 1923
GenX	ND		1	8.0	2.1	ng/L	12/24/2024 1923
ADONA	ND		1	8.0	0.48	ng/L	12/24/2024 1923
EtFOSAA	ND		1	8.0	0.75	ng/L	12/24/2024 1923
MeFOSAA	ND		1	8.0	0.93	ng/L	12/24/2024 1923
PFBS	ND		1	4.0	0.41	ng/L	12/24/2024 1923
PFDS	ND		1	4.0	0.78	ng/L	12/24/2024 1923
PFHpS	ND		1	4.0	0.50	ng/L	12/24/2024 1923
PFNS	ND		1	4.0	0.71	ng/L	12/24/2024 1923
PFOSA	ND		1	4.0	0.61	ng/L	12/24/2024 1923
PFPeS	ND		1	4.0	0.59	ng/L	12/24/2024 1923
PFHxS	ND		1	4.0	0.55	ng/L	12/24/2024 1923
PFBA	ND		1	4.0	0.60	ng/L	12/24/2024 1923
PFDA	ND		1	4.0	0.52	ng/L	12/24/2024 1923
PFDoA	ND		1	4.0	0.47	ng/L	12/24/2024 1923
PFHpA	ND		1	4.0	0.45	ng/L	12/24/2024 1923
PFHxA	ND		1	4.0	0.69	ng/L	12/24/2024 1923
PFNA	ND		1	4.0	0.46	ng/L	12/24/2024 1923
PFOA	ND		1	4.0	0.83	ng/L	12/24/2024 1923
PFPeA	ND		1	4.0	0.54	ng/L	12/24/2024 1923
PFTeDA	ND		1	4.0	0.60	ng/L	12/24/2024 1923
PFTrDA	ND		1	4.0	0.53	ng/L	12/24/2024 1923
PFUdA	ND		1	4.0	0.63	ng/L	12/24/2024 1923
PFOS	ND		1	4.0	2.0	ng/L	12/24/2024 1923

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		106	25-150
13C2_6:2FTS		135	25-150
13C2_8:2FTS		104	25-150
13C2_PFDoA		87	25-150
13C2_PFTeDA		85	25-150
13C3_PFBS		98	25-150
13C3_PFHxS		103	25-150
13C3-HFPO-DA		95	25-150
13C4_PFBA		106	25-150
13C4_PFHpA		98	25-150
13C5_PFHxA		103	25-150
13C5_PFPeA		90	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: ZQ21508-001
Batch: 21508
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/23/2024 1047

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		88	25-150
13C7_PFUdA		100	25-150
13C8_PFOA		101	25-150
13C8_PFOS		102	25-150
13C8_PFOSA		88	10-150
13C9_PFNA		94	25-150
d5-EtFOSAA		100	25-150
d3-MeFOSAA		90	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ21508-002
Batch: 21508
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/23/2024 1047

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	7.5	6.8		1	91	50-150	12/24/2024 1933
11Cl-PF3OUdS	7.5	7.2		1	96	50-150	12/24/2024 1933
8:2 FTS	7.7	8.6		1	112	50-150	12/24/2024 1933
6:2 FTS	7.6	6.0		1	79	50-150	12/24/2024 1933
4:2 FTS	7.5	8.4		1	113	50-150	12/24/2024 1933
GenX	16	15		1	91	50-150	12/24/2024 1933
ADONA	7.5	8.5		1	112	50-150	12/24/2024 1933
EtFOSAA	8.0	7.8		1	97	50-150	12/24/2024 1933
MeFOSAA	8.0	7.0		1	88	50-150	12/24/2024 1933
PFBS	7.1	7.7		1	109	50-150	12/24/2024 1933
PFDS	7.7	6.9		1	90	50-150	12/24/2024 1933
PFHpS	7.6	7.2		1	95	50-150	12/24/2024 1933
PFNS	7.7	7.3		1	95	50-150	12/24/2024 1933
PFOSA	8.0	8.9		1	111	50-150	12/24/2024 1933
PFPeS	7.5	8.3		1	110	50-150	12/24/2024 1933
PFHxS	7.3	7.3		1	100	50-150	12/24/2024 1933
PFBA	8.0	8.9		1	111	50-150	12/24/2024 1933
PFDA	8.0	8.6		1	108	50-150	12/24/2024 1933
PFDoA	8.0	8.0		1	100	50-150	12/24/2024 1933
PFHpA	8.0	7.5		1	94	50-150	12/24/2024 1933
PFHxA	8.0	8.1		1	102	50-150	12/24/2024 1933
PFNA	8.0	8.4		1	105	50-150	12/24/2024 1933
PFOA	8.0	9.0		1	113	50-150	12/24/2024 1933
PFPeA	8.0	7.8		1	97	50-150	12/24/2024 1933
PFTeDA	8.0	9.3		1	117	50-150	12/24/2024 1933
PFTrDA	8.0	8.4		1	106	50-150	12/24/2024 1933
PFUdA	8.0	9.9		1	124	50-150	12/24/2024 1933
PFOS	7.4	7.5		1	101	50-150	12/24/2024 1933

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		115	25-150
13C2_6:2FTS		127	25-150
13C2_8:2FTS		95	25-150
13C2_PFDoA		86	25-150
13C2_PFTeDA		83	25-150
13C3_PFBS		97	25-150
13C3_PFHxS		102	25-150
13C3-HFPO-DA		101	25-150
13C4_PFBA		106	25-150
13C4_PFHpA		94	25-150
13C5_PFHxA		106	25-150
13C5_PFPeA		100	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ21508-002
Batch: 21508
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/23/2024 1047

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		85	25-150
13C7_PFUdA		80	25-150
13C8_PFOA		95	25-150
13C8_PFOS		101	25-150
13C8_PFOSA		86	10-150
13C9_PFNA		98	25-150
d5-EtFOSAA		97	25-150
d3-MeFOSAA		94	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Chain of Custody
and
Miscellaneous Documents

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

Pace Analytical® **Chain of Custody Record**

Plant 6

Pace Analytical Services, LLC.
106 Vantage Point Drive
West Columbia, South Carolina 29172
Telephone No. (803) 791-9700 Fax No. (803) 791-9111
www.pacelabs.com

Number ZK21007

Client	Report to Contact	Telephone No. / E-mail	Quote No.
Arcadis	Tiffany Linder, Kaitlyn Hunt	(248)809-4013/ kaitlyn.hunt@arcadis.com	
Address: 28550 Cabot Drive, Suite 500	Sampler's Signature: X	Analysis (Attach list if more space is needed)	Page of
City: Novi / State: MI / Zip Code: 48377	Printed Name		
Project Name: RACER Lansing GWS			
Project Number: 30214036.0370A	P.O. No.		

Sample ID / Description (Containers for each sample may be combined on one line)	Collection Date(s)	Collection Time (military)	G-Grab C-Composite	Matrix: Aqueous	Solid	Non-Aqueous	No of Containers by Preservative Type: Unpres.	H2SO4	HNO3	HCl	NaOH	5035 Kit	Field Filtered	PFAS (Method 537M, EGLE 28 compounds)								Remarks / Cooler I.D.
MW-22-145_111324	11/13/24	1125	G	X			2							2								
MW-22-144*_111324	11/13/24	1235	G	X			2							2								
MW-22-158_111324	11/13/24	1435	G	X			2							2								
MW-22-160_111324	11/13/24	1600	G	X			6	4	TS	11/15/24			6	4	11/15/24 TS							
MW-12-12_111424	11/14/24	1000	G	X			2							2								
MW-13-36R_111424	11/14/24	1125	G	X			2							2								
MW-22-147_111424	11/14/24	1255	G	X			2							2								
MW-22-148_111424	11/14/24	1415	G	X			2							2								
MW-22-143_111524	11/15/24	1005	G	X			2							2								
DUP-08_111424	11/14/24	—	G	X			2							2								

Turn Around Time Required (Prior lab approval required for expedited TAT)	Sample Disposal	Possible Hazard Identification (List any known hazards in the remarks)	QC Requirements
☑ Standard ☐ Rush (Please Specify)	☐ Return to Client ☑ Disposal by Lab	☐ Non-Hazardous ☐ Flammable ☐ Skin Irritant ☐ SDS provided ☐ Unknown	

	Date	Time		Date	Time
1. Relinquished by	11/20/24	1530	1. Received by		
2. Relinquished by			2. Received by		
3. Relinquished by			3. Received by		
4. Relinquished by: Fedex	11-21-24	940	4. Laboratory Received by	11-21-24	940

Note: All samples are retained for four weeks from receipt unless other arrangements are made

LAB USE ONLY — Received on Ice (Check): ☑ Y ☐ N ☐ Ice Pack — Receipt Temp. 1.9, 3.1 °C — Temp. Blank ☑ Y / ☐ N

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Chain of Custody Record

Plant 6

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106 Vantage Point Drive
West Columbia, South Carolina 29172
Telephone No. (803) 791-9700 Fax No. (803) 791-9111
www.pacelabs.com

Number ZK21007

KF82

Client: Arcadis	Report to Contact: Tiffany Linder, Kaitlyn Hunt	Telephone No. / E-mail: (248)809-4013/ kaitlyn.hunt@arcadis.com	Quote No.
Address: 28550 Cabot Drive, Suite 500	Sampler's Signature: X	Analysis (Attach list if more space is needed)	Page: of
City: Novi / State: MI / Zip Code: 48377	Printed Name:		
Project Name: RACER Lansing GWS			
Project Number: 30214036.0370A	P.O. No.		

Sample ID / Description (Containers for each sample may be combined on one line)	Collection Date(s)	Collection Time (military)	G=Grab C=Composite	Matrix: Aqueous	Solid	Non-Aqueous	No of Containers by Preservative Type: Unpres.	H2SO4	HNO3	HCl	NaOH	5035 Kit	Field Filtered	PFAS (Method 537M, EGLE 28 compounds)	Remarks / Cooler I.D.
MW-22-146_111524	11/15/24	1125	G	X			2							2	
MW-22-149_111524	11/15/24	1225	G	X			2							2	
EB-01_111524	11/15/24	1315	G	X			2							2	

Turn Around Time Required (Prior lab approval required for expedited TAT): ☒ Standard ☐ Rush (Please Specify)

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab

Possible Hazard Identification (List any known hazards in the remarks): ☐ Non-Hazardous ☐ Flammable ☐ Skin Irritant ☐ MSDS provided ☐ Unknown

QC Requirements

	Date	Time		Date	Time
1. Relinquished by	11/20/24	1530	1. Received by		
2. Relinquished by			2. Received by		
3. Relinquished by			3. Received by		
4. Relinquished by: fedex	11-21-24	940	4. Laboratory Received by	11.21.24	940

Note: All samples are retained for four weeks from receipt unless other arrangements are made

LAB USE ONLY — Received on Ice (Check) ☑ Y ☐ N ☐ Ice Pack — Receipt Temp. 3.1 °C — Temp. Blank ☑ Y / ☐ N

Pace Analytical® **Chain of Custody Record**

Pace Analytical Services, LLC.
106 Vantage Point Drive
West Columbia, South Carolina 29172
Telephone No. (803) 791-9700 Fax No. (803) 791-9111
www.pacelabs.com

Number PLANT-6

Client: Arcadis	Report to Contact: Tiffany Linder, Kaitlyn Hunt	Telephone No. / E-mail: (248)809-4013/ kaitlyn.hunt@arcadis.com	Quote No.
Address: 28550 Cabot Drive, Suite 500	Sampler's Signature: x [signature]	Analysis (Attach list if more space is needed)	Page: of
City: Novi; State: MI; Zip Code: 48377	Printed Name: Austin Westhuis		
Project Name: RACER Lansing GWS			
Project Number: 30214036.0370A	P.O. No.		

ZK21007
KES2

Sample ID / Description (Containers for each sample may be combined on one line)	Collection Date(s)	Collection Time (military)	G=Grab C=Composite	Matrix: Aqueous	Solid	Non-Aqueous	No of Containers by Preservative Type: Unpres.	H2SO4	HNO3	HCl	NaOH	5035 Kit	Field Filtered	PFAS (Method 537M, EGLE 28 compounds)	Remarks / Cooler I.D.
MW-21-133_111824	11/18/24	1210	G	X			2							2	
DUP-06_111824	11/18/24	—	G	X			2							2	
MW-21-134_111824	11/18/24	1310	G	X			2							2	
MW-12-13_111824	11/18/24	1505	G	X			2							2	
MW-20-131_111924	11/19/24	1055	G	X			2							2	
MW-20-132_111924	11/19/24	1205	G	X			2							2	
MW-22-150_111924	11/19/24	1345	G	X			2							2	
MW-22-151_111924	11/19/24	1500	G	X			2							2	
EB-04_111924	11/19/24	1545	G	X			2							2	

Turn Around Time Required (Prior lab approval required for expedited TAT): ☒ Standard ☐ Rush (Please Specify)	Sample Disposal: ☐ Return to Client ☒ Disposal by Lab	Possible Hazard Identification (List any known hazards in the remarks): ☒ Non-Hazardous ☐ Flammable ☐ Skin Irritant ☐ SDS provided ☐ Unknown			QC Requirements
1. Relinquished by: [signature]	Date: 11-20-24	Time: 1530	1. Received by	Date	Time
2. Relinquished by	Date	Time	2. Received by	Date	Time
3. Relinquished by	Date	Time	3. Received by	Date	Time
4. Relinquished by: Fedex	Date: 11.21.24	Time: 940	4. Laboratory Received by: [signature]	Date: 11.21.24	Time: 940

Note: All samples are retained for four weeks from receipt unless other arrangements are made

LAB USE ONLY
Received on Ice (Check) ☒ Y ☐ N ☐ Ice Pack
Receipt Temp. 1.93 °C
Temp. Blank ☒ Y / ☐ N

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Plant 6

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106 Vantage Point Drive • West Columbia, SC 29172
Telephone No. 803-791-9700 Fax No. 803-791-9111
www.pacelabs.com

Number 157500

Client: Arcadis	Report to Contact: Kaitlyn Hunt	Telephone No. / E-mail: 947-777-5215 / kaitlyn.hunt@arcadis.com	Quote No.
Address: 28550 Cabot Dr Suite 500	Sampler's Signature: x Donald Richmond	Analysis (Attach list if more space is needed)	Page ___ of ___
City: Novi	State: MI	Zip Code: 48377	Printed Name: Donald Richmond
Project Name: Route Lansing			
Project No.: 30214036.0370A	P.O. No.		

Sample ID / Description (Containers for each sample may be combined on one line.)	Collection Date(s)	Collection Time (Military)	Comp/Grab	Matrix: Aqueous	Matrix: Solid	Matrix: Non-aqueous	No. of Containers by Preservative Type: Unpres.	HCl	HNO3	H2SO4	NaOH	Na2S2O3	Methanol	Analysis: Table B - PFAS - QSM-5.3	Remarks / Cooler I.D.
MW-22-152_112024	11/20/24	1130	G	2			2							X	
Dup-09_112024	11/20/24	—	G	2			2							X	

ZK21007

KES2

Turn Around Time Required (Prior lab approval required for expedited TAT.): ☐ Standard ☐ Rush (Specify)

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison ☐ Unknown

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished by	11/24/24	1530	1. Received by		
2. Relinquished by			2. Received by		
3. Relinquished by			3. Received by		
4. Relinquished by: FedEx	11/21/24	940	4. Laboratory received by: Kelyan Cummins	11-21-24	940

Note: All samples are retained for four weeks from receipt unless other arrangements are made.

LAB USE ONLY
Received on Ice (Circle): (Yes) No Ice Pack: Receipt Temp: 1.9 °C Temp Blank: ☑ Y ☐ N

DISTRIBUTION: WHITE & YELLOW-Return to laboratory with Sample(s); PINK-Field/Client Copy

Document Number: ME003N2-01

PACE ANALYTICAL SERVICES, LLC

DC#_Title: ENV-FRM-WCOL-0286 v02_Samples Receipt Checklist (SRC)
Effective Date: 8/2/2022

Sample Receipt Checklist (SRC)

Client: Arcadis Cooler Inspected by/date: KDRW / 11/21/2024 Lot #: 7K21007

Means of receipt: ☐ Pace ☐ Client ☐ UPS ☑ FedEx ☐ Other: ____

☐ Yes	☑ No		1. Were custody seals present on the cooler?
☐ Yes	☐ No	☑ NA	2. If custody seals were present, were they intact and unbroken?

pH Strip ID: NA Chlorine Strip ID: NA Tested by: NA

Original temperature upon receipt / Derived (Corrected) temperature upon receipt %Solid Snap-Cup ID: NA

1.9/1.9°C 3.1/3.1 °C NA /NA °C NA /NA °C

Method: ☐ Temperature Blank ☐ Against Bottles IR Gun ID: 8 IR Gun Correction Factor: 0 °C

Method of coolant: ☑ Wet Ice ☐ Ice Packs ☐ Dry Ice ☐ None

☑ Yes	☐ No	☐ NA	3. Were all coolers received at or below 6.0°C? If no, was Project Manager notified? PM was Notified by: phone / email / face-to-face (circle one).
☑ Yes	☐ No	☐ NA	4. Is the commercial courier's packing slip attached to this form?
☑ Yes	☐ No		5. Were proper custody procedures (relinquished/received) followed?
☑ Yes	☐ No		6. Were sample IDs listed on the COC and all sample containers?
☑ Yes	☐ No		7. Was collection date & time listed on the COC and all sample containers?
☑ Yes	☐ No		8. Did all container label information (ID, date, time) agree with the COC?
☑ Yes	☐ No		9. Were tests to be performed listed on the COC?
☑ Yes	☐ No		10. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)? ____
☑ Yes	☐ No		11. Was adequate sample volume available?
☑ Yes	☐ No		12. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
☑ Yes	☐ No		13. Were all samples containers accounted for? (No missing/excess)
☐ Yes	☐ No	☑ NA	14. Were VOA, 8015C and RSK-175 samples free of bubbles >"pea-size" (¼"or 6mm in diameter) in any of the VOA vials?
☐ Yes	☐ No	☑ NA	15. Were all DRO/metals/nutrient samples received at a pH of < 2?
☐ Yes	☐ No	☑ NA	16. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
☐ Yes	☐ No	☑ NA	17. Were all applicable NH_3/TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?
☑ Yes	☐ No	☐ NA	18. Was the quote number listed on the container label? If yes, Quote # 253299

Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)

Sample(s) NA ____ were received incorrectly preserved and were adjusted accordingly in sample receiving with NA mL of circle one: H2SO4, HNO3, HCl, NaOH using SR # NA. ☐
Time of preservation: NA. If more than one preservative is needed, please note in the comments below.

Sample(s) NA ____ were received with bubbles >6 mm in diameter.

Samples(s) NA ____ were received with TRC > 0.5 mg/L (If #19 is *no*) and were adjusted accordingly in sample receiving with sodium thiosulfate ($Na_2S_2O_3$) with Unique ID: NA.

Comments:

Qualtrax ID: 56360

Appendix B-2

Soil Vapor Laboratory Analytical Reports

Metiri Group - Holt
1914 Holloway Dr, Holt, MI 48842 - Phone (517) 699-0345 - www.metirigroup.com

August 30, 2024

Kaitlyn Hunt
Arcadis U.S., Inc. - Novi
28550 Cabot Drive, Suite 500
Novi, MI 48377

RE: RACER Lansing
24H0131

Thank you for selecting Metiri Group - Holt as your analytical laboratory. The samples submitted have been analyzed in accordance with all method and NELAC standards, as applicable. Any exceptions to compliance are noted in the report.

Please note that TO-15 samples will be disposed of 7 calendar days after the reporting date. All other samples will be disposed of 30 days after the reporting date.

If you have any questions regarding these results, or if we may be of further assistance to you, please contact us at (517) 699-0345.

Sincerely,



Jacob Sutherlund
Project Manager
jacob.sutherlund@metirigroup.com
517-273-4922

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Arcadis U.S., Inc. - Novi	Project: RACER Lansing	
28550 Cabot Drive, Suite 500	Project Number: 30214036.00102	
Novi, MI 48377	Project Manager: Kaitlyn Hunt	Reported: 08/30/2024 15:35

Samples in this Report

Lab ID	Sample	Matrix	Date Sampled	Date Received
24H0131-01	SVMP-20-01-082024	Air	08/20/2024 10:56	08/20/2024
24H0131-02	Dup-01-082024	Air	08/20/2024 00:00	08/20/2024

The contents of this report apply to the sample(s) analyzed in accordance with the chain of custody document.
No duplication of this report is allowed, except in its entirety.

Arcadis U.S., Inc. - Novi	Project: RACER Lansing	
28550 Cabot Drive, Suite 500	Project Number: 30214036.00102	
Novi, MI 48377	Project Manager: Kaitlyn Hunt	Reported: 08/30/2024 15:35

Sample Results

Sample: SVMP-20-01-082024
24H0131-01 (Air)

	Analyte	Result/Qual	PQL	Units	Date Analyzed	DF	Method	Prep Batch
Volatiles Analysis-GC/MS (TO-15)								
1	1,1,1-Trichloroethane	ND	33	ug/m3	08/25/24	1	EPA TO-15	BDH0102
2	1,1,2,2-Tetrachloroethane	ND	3.3	ug/m3	08/25/24	1	EPA TO-15	BDH0102
3	1,1,2-Trichloroethane	ND	6.5	ug/m3	08/25/24	1	EPA TO-15	BDH0102
4	1,1,2-Trichlorotrifluoroethane	ND	46	ug/m3	08/25/24	1	EPA TO-15	BDH0102
5	1,1-Dichloroethane	ND	24	ug/m3	08/25/24	1	EPA TO-15	BDH0102
6	1,1-Dichloroethene	ND	24	ug/m3	08/25/24	1	EPA TO-15	BDH0102
7	1,2,4-Trichlorobenzene	ND	22	ug/m3	08/25/24	1	EPA TO-15	BDH0102
8	1,2,4-Trimethylbenzene	ND	29	ug/m3	08/25/24	1	EPA TO-15	BDH0102
9	1,2-Dichlorobenzene	ND	36	ug/m3	08/25/24	1	EPA TO-15	BDH0102
10	1,2-Dichloroethane	ND	4.9	ug/m3	08/25/24	1	EPA TO-15	BDH0102
11	1,2-Dichloropropane	ND	28	ug/m3	08/25/24	1	EPA TO-15	BDH0102
12	1,3,5-Trimethylbenzene	ND	29	ug/m3	08/25/24	1	EPA TO-15	BDH0102
13	1,3-Butadiene	ND	2.7	ug/m3	08/25/24	1	EPA TO-15	BDH0102
14	1,3-Dichlorobenzene	ND	36	ug/m3	08/25/24	1	EPA TO-15	BDH0102
15	1,4-Dichlorobenzene	ND	36	ug/m3	08/25/24	1	EPA TO-15	BDH0102
16	1,4-Dioxane	ND	22	ug/m3	08/25/24	1	EPA TO-15	BDH0102
17	2,2,4-Trimethylpentane	ND	56	ug/m3	08/25/24	1	EPA TO-15	BDH0102
18	2-Butanone	ND	35	ug/m3	08/25/24	1	EPA TO-15	BDH0102
19	2-Hexanone	ND	49	ug/m3	08/25/24	1	EPA TO-15	BDH0102
20	4-Methyl-2-pentanone	ND	49	ug/m3	08/25/24	1	EPA TO-15	BDH0102
21	Acetone	ND	57	ug/m3	08/25/24	1	EPA TO-15	BDH0102
22	Benzene	ND	19	ug/m3	08/25/24	1	EPA TO-15	BDH0102
23	Benzyl Chloride	ND	6.2	ug/m3	08/25/24	1	EPA TO-15	BDH0102
24	Bromodichloromethane	ND	8.0	ug/m3	08/25/24	1	EPA TO-15	BDH0102
25	Bromoform	ND	62	ug/m3	08/25/24	1	EPA TO-15	BDH0102
26	Bromomethane	ND	23	ug/m3	08/25/24	1	EPA TO-15	BDH0102
27	Carbon Disulfide	ND	37	ug/m3	08/25/24	1	EPA TO-15	BDH0102
28	Carbon Tetrachloride	ND	7.5	ug/m3	08/25/24	1	EPA TO-15	BDH0102
29	Chlorobenzene	ND	28	ug/m3	08/25/24	1	EPA TO-15	BDH0102
30	Chloroethane	ND	16	ug/m3	08/25/24	1	EPA TO-15	BDH0102
31	Chloroform	ND	5.9	ug/m3	08/25/24	1	EPA TO-15	BDH0102
32	Chloromethane	ND	12	ug/m3	08/25/24	1	EPA TO-15	BDH0102

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Arcadis U.S., Inc. - Novi	Project: RACER Lansing	
28550 Cabot Drive, Suite 500	Project Number: 30214036.00102	
Novi, MI 48377	Project Manager: Kaitlyn Hunt	Reported: 08/30/2024 15:35

Sample Results
(Continued)

Sample: SVMP-20-01-082024 (Continued)
24H0131-01 (Air)

	Analyte	Result	Qual	PQL	Units	Date Analyzed	DF	Method	Prep Batch
Volatiles Analysis-GC/MS (TO-15) (Continued)									
33	cis-1,2-Dichloroethene	ND		24	ug/m3	08/25/24	1	EPA TO-15	BDH0102
34	cis-1,3-Dichloropropene	ND		27	ug/m3	08/25/24	1	EPA TO-15	BDH0102
35	Cyclohexane	ND		41	ug/m3	08/25/24	1	EPA TO-15	BDH0102
36	Dibromochloromethane	ND		4.1	ug/m3	08/25/24	1	EPA TO-15	BDH0102
37	Dichlorodifluoromethane	ND		30	ug/m3	08/25/24	1	EPA TO-15	BDH0102
38	Ethanol	ND		23	ug/m3	08/25/24	1	EPA TO-15	BDH0102
39	Ethyl Acetate	ND		43	ug/m3	08/25/24	1	EPA TO-15	BDH0102
40	Ethylbenzene	ND		52	ug/m3	08/25/24	1	EPA TO-15	BDH0102
41	Ethylene Dibromide	ND		0.92	ug/m3	08/25/24	1	EPA TO-15	BDH0102
42	Hexachlorobutadiene	ND		5.1	ug/m3	08/25/24	1	EPA TO-15	BDH0102
43	Isopropanol	ND		29	ug/m3	08/25/24	1	EPA TO-15	BDH0102
44	m&p-Xylene	ND		52	ug/m3	08/25/24	1	EPA TO-15	BDH0102
45	Methylene Chloride	ND		42	ug/m3	08/25/24	1	EPA TO-15	BDH0102
46	MTBE	ND		22	ug/m3	08/25/24	1	EPA TO-15	BDH0102
47	Naphthalene	ND		19	ug/m3	08/25/24	1	EPA TO-15	BDH0102
48	n-Heptane	ND	V+	49	ug/m3	08/25/24	1	EPA TO-15	BDH0102
49	n-Hexane	ND		42	ug/m3	08/25/24	1	EPA TO-15	BDH0102
‡ 50	n-Pentane	ND	V+	18	ug/m3	08/25/24	1	EPA TO-15	BDH0102
51	n-Propylbenzene	ND		29	ug/m3	08/25/24	1	EPA TO-15	BDH0102
52	o-Xylene	ND		52	ug/m3	08/25/24	1	EPA TO-15	BDH0102
53	sec-Butylbenzene	ND		6.6	ug/m3	08/25/24	1	EPA TO-15	BDH0102
54	Styrene	ND		51	ug/m3	08/25/24	1	EPA TO-15	BDH0102
55	tert-Butylbenzene	ND		6.6	ug/m3	08/25/24	1	EPA TO-15	BDH0102
56	Tetrachloroethene	ND		41	ug/m3	08/25/24	1	EPA TO-15	BDH0102
57	Tetrahydrofuran	ND	V+	3.5	ug/m3	08/25/24	1	EPA TO-15	BDH0102
58	Toluene	ND		23	ug/m3	08/25/24	1	EPA TO-15	BDH0102
59	trans-1,2-Dichloroethene	ND		24	ug/m3	08/25/24	1	EPA TO-15	BDH0102
60	trans-1,3-Dichloropropene	ND		27	ug/m3	08/25/24	1	EPA TO-15	BDH0102
61	Trichloroethene	ND		1.6	ug/m3	08/25/24	1	EPA TO-15	BDH0102
62	Trichlorofluoromethane	ND		34	ug/m3	08/25/24	1	EPA TO-15	BDH0102
63	Vinyl Acetate	ND		42	ug/m3	08/25/24	1	EPA TO-15	BDH0102
64	Vinyl Chloride	ND		15	ug/m3	08/25/24	1	EPA TO-15	BDH0102

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28550 Cabot Drive, Suite 500	Project Number: 30214036.00102	
Novi, MI 48377	Project Manager: Kaitlyn Hunt	Reported: 08/30/2024 15:35

Sample Results
(Continued)

Sample: SVMP-20-01-082024 (Continued)
24H0131-01 (Air)

	Analyte	Result /Qual	PQL	Units	Date Analyzed	DF	Method	Prep Batch
Volatiles Analysis-GC/MS (TO-15) (Continued)								
65	Xylenes	ND	100	ug/m3	08/25/24	1	EPA TO-15	BDH0102
Surrogate: 4-Bromofluorobenzene(S)		*93%*	*80-120*		*08/25/24*	*1*	*EPA TO-15*	

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28550 Cabot Drive, Suite 500	Project Number: 30214036.00102	
Novi, MI 48377	Project Manager: Kaitlyn Hunt	Reported: 08/30/2024 15:35

Sample Results
(Continued)

Sample: Dup-01-082024
24H0131-02 (Air)

	Analyte	Result/Qual	PQL	Units	Date Analyzed	DF	Method	Prep Batch
Volatiles Analysis-GC/MS (TO-15)								
1	1,1,1-Trichloroethane	ND	33	ug/m3	08/26/24	1	EPA TO-15	BDH0102
2	1,1,2,2-Tetrachloroethane	ND	3.3	ug/m3	08/26/24	1	EPA TO-15	BDH0102
3	1,1,2-Trichloroethane	ND	6.5	ug/m3	08/26/24	1	EPA TO-15	BDH0102
4	1,1,2-Trichlorotrifluoroethane	ND	46	ug/m3	08/26/24	1	EPA TO-15	BDH0102
5	1,1-Dichloroethane	ND	24	ug/m3	08/26/24	1	EPA TO-15	BDH0102
6	1,1-Dichloroethene	ND	24	ug/m3	08/26/24	1	EPA TO-15	BDH0102
7	1,2,4-Trichlorobenzene	ND	22	ug/m3	08/26/24	1	EPA TO-15	BDH0102
8	1,2,4-Trimethylbenzene	ND	29	ug/m3	08/26/24	1	EPA TO-15	BDH0102
9	1,2-Dichlorobenzene	ND	36	ug/m3	08/26/24	1	EPA TO-15	BDH0102
10	1,2-Dichloroethane	ND	4.9	ug/m3	08/26/24	1	EPA TO-15	BDH0102
11	1,2-Dichloropropane	ND	28	ug/m3	08/26/24	1	EPA TO-15	BDH0102
12	1,3,5-Trimethylbenzene	ND	29	ug/m3	08/26/24	1	EPA TO-15	BDH0102
13	1,3-Butadiene	ND	2.7	ug/m3	08/26/24	1	EPA TO-15	BDH0102
14	1,3-Dichlorobenzene	ND	36	ug/m3	08/26/24	1	EPA TO-15	BDH0102
15	1,4-Dichlorobenzene	ND	36	ug/m3	08/26/24	1	EPA TO-15	BDH0102
16	1,4-Dioxane	ND	22	ug/m3	08/26/24	1	EPA TO-15	BDH0102
17	2,2,4-Trimethylpentane	ND	56	ug/m3	08/26/24	1	EPA TO-15	BDH0102
18	2-Butanone	ND	35	ug/m3	08/26/24	1	EPA TO-15	BDH0102
19	2-Hexanone	ND	49	ug/m3	08/26/24	1	EPA TO-15	BDH0102
20	4-Methyl-2-pentanone	ND	49	ug/m3	08/26/24	1	EPA TO-15	BDH0102
21	Acetone	ND	57	ug/m3	08/26/24	1	EPA TO-15	BDH0102
22	Benzene	ND	19	ug/m3	08/26/24	1	EPA TO-15	BDH0102
23	Benzyl Chloride	ND	6.2	ug/m3	08/26/24	1	EPA TO-15	BDH0102
24	Bromodichloromethane	ND	8.0	ug/m3	08/26/24	1	EPA TO-15	BDH0102
25	Bromoform	ND	62	ug/m3	08/26/24	1	EPA TO-15	BDH0102
26	Bromomethane	ND	23	ug/m3	08/26/24	1	EPA TO-15	BDH0102
27	Carbon Disulfide	ND	37	ug/m3	08/26/24	1	EPA TO-15	BDH0102
28	Carbon Tetrachloride	ND	7.5	ug/m3	08/26/24	1	EPA TO-15	BDH0102
29	Chlorobenzene	ND	28	ug/m3	08/26/24	1	EPA TO-15	BDH0102
30	Chloroethane	ND	16	ug/m3	08/26/24	1	EPA TO-15	BDH0102
31	Chloroform	ND	5.9	ug/m3	08/26/24	1	EPA TO-15	BDH0102
32	Chloromethane	ND	12	ug/m3	08/26/24	1	EPA TO-15	BDH0102

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28550 Cabot Drive, Suite 500	Project Number: 30214036.00102	
Novi, MI 48377	Project Manager: Kaitlyn Hunt	Reported: 08/30/2024 15:35

Sample Results
(Continued)

Sample: Dup-01-082024 (Continued)
24H0131-02 (Air)

	Analyte	Result	Qual	PQL	Units	Date Analyzed	DF	Method	Prep Batch
Volatiles Analysis-GC/MS (TO-15) (Continued)									
33	cis-1,2-Dichloroethene	ND		24	ug/m3	08/26/24	1	EPA TO-15	BDH0102
34	cis-1,3-Dichloropropene	ND		27	ug/m3	08/26/24	1	EPA TO-15	BDH0102
35	Cyclohexane	ND		41	ug/m3	08/26/24	1	EPA TO-15	BDH0102
36	Dibromochloromethane	ND		4.1	ug/m3	08/26/24	1	EPA TO-15	BDH0102
37	Dichlorodifluoromethane	ND		30	ug/m3	08/26/24	1	EPA TO-15	BDH0102
38	Ethanol	ND		23	ug/m3	08/26/24	1	EPA TO-15	BDH0102
39	Ethyl Acetate	ND		43	ug/m3	08/26/24	1	EPA TO-15	BDH0102
40	Ethylbenzene	ND		52	ug/m3	08/26/24	1	EPA TO-15	BDH0102
41	Ethylene Dibromide	ND		0.92	ug/m3	08/26/24	1	EPA TO-15	BDH0102
42	Hexachlorobutadiene	ND		5.1	ug/m3	08/26/24	1	EPA TO-15	BDH0102
43	Isopropanol	ND		29	ug/m3	08/26/24	1	EPA TO-15	BDH0102
44	m&p-Xylene	ND		52	ug/m3	08/26/24	1	EPA TO-15	BDH0102
45	Methylene Chloride	ND		42	ug/m3	08/26/24	1	EPA TO-15	BDH0102
46	MTBE	ND		22	ug/m3	08/26/24	1	EPA TO-15	BDH0102
47	Naphthalene	ND		19	ug/m3	08/26/24	1	EPA TO-15	BDH0102
48	n-Heptane	ND	V+	49	ug/m3	08/26/24	1	EPA TO-15	BDH0102
49	n-Hexane	ND		42	ug/m3	08/26/24	1	EPA TO-15	BDH0102
‡ 50	n-Pentane	ND	V+	18	ug/m3	08/26/24	1	EPA TO-15	BDH0102
51	n-Propylbenzene	ND		29	ug/m3	08/26/24	1	EPA TO-15	BDH0102
52	o-Xylene	ND		52	ug/m3	08/26/24	1	EPA TO-15	BDH0102
53	sec-Butylbenzene	ND		6.6	ug/m3	08/26/24	1	EPA TO-15	BDH0102
54	Styrene	ND		51	ug/m3	08/26/24	1	EPA TO-15	BDH0102
55	tert-Butylbenzene	ND		6.6	ug/m3	08/26/24	1	EPA TO-15	BDH0102
56	Tetrachloroethene	ND		41	ug/m3	08/26/24	1	EPA TO-15	BDH0102
57	Tetrahydrofuran	ND	V+	3.5	ug/m3	08/26/24	1	EPA TO-15	BDH0102
58	Toluene	ND		23	ug/m3	08/26/24	1	EPA TO-15	BDH0102
59	trans-1,2-Dichloroethene	ND		24	ug/m3	08/26/24	1	EPA TO-15	BDH0102
60	trans-1,3-Dichloropropene	ND		27	ug/m3	08/26/24	1	EPA TO-15	BDH0102
61	Trichloroethene	ND		1.6	ug/m3	08/26/24	1	EPA TO-15	BDH0102
62	Trichlorofluoromethane	ND		34	ug/m3	08/26/24	1	EPA TO-15	BDH0102
63	Vinyl Acetate	ND		42	ug/m3	08/26/24	1	EPA TO-15	BDH0102
64	Vinyl Chloride	ND		15	ug/m3	08/26/24	1	EPA TO-15	BDH0102

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28550 Cabot Drive, Suite 500	Project Number: 30214036.00102	
Novi, MI 48377	Project Manager: Kaitlyn Hunt	Reported: 08/30/2024 15:35

Sample Results
(Continued)

Sample: Dup-01-082024 (Continued)
24H0131-02 (Air)

Analyte	Result /Qual	PQL	Units	Date Analyzed	DF	Method	Prep Batch
Volatiles Analysis-GC/MS (TO-15) (Continued)							
65 Xylenes	ND	100	ug/m3	08/26/24	1	EPA TO-15	BDH0102
Surrogate: 4-Bromofluorobenzene(S)	*92%*	*80-120*		*08/26/24*	*1*	*EPA TO-15*	

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28550 Cabot Drive, Suite 500	Project Number: 30214036.00102	
Novi, MI 48377	Project Manager: Kaitlyn Hunt	Reported: 08/30/2024 15:35

PREPARATION BATCH SUMMARY

EPA TO-15

Laboratory: Metiri Group - Holt

Client:

Batch: BDH0102 Batch Matrix: Air Preparation: TO-15

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT mL	FINAL VOL. ml
SVMP-20-01-082024	24H0131-01	08/23/24 11:55	100.0000	400
Dup-01-082024	24H0131-02	08/23/24 11:55	100.0000	400
Blank	BDH0102-BLK1	08/23/24 10:05	400.0000	400
LCS	BDH0102-BS1	08/23/24 10:05	400.0000	400
LCS Dup	BDH0102-BSD1	08/23/24 10:05	400.0000	400

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Novi, MI 48377	Project Manager: Kaitlyn Hunt	Reported: 08/30/2024 15:35

Quality Control

Volatiles Analysis-GC/MS (TO-15)

Analyte	Result/ Qual	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Method: EPA TO-15									
Batch: BDH0102 - TO-15									
Blank (BDH0102-BLK1)				Prepared: 08/23/24 10:05 Analyzed: 08/25/24 15:05					
1 1,1,1-Trichloroethane	ND	8.2	ug/m3						
2 1,1,2,2-Tetrachloroethane	ND	0.82	ug/m3						
3 1,1,2-Trichloroethane	ND	1.6	ug/m3						
4 1,1,2-Trichlorotrifluoroethane	ND	11	ug/m3						
5 1,1-Dichloroethane	ND	6.1	ug/m3						
6 1,1-Dichloroethene	ND	5.9	ug/m3						
7 1,2,4-Trichlorobenzene	ND	5.6	ug/m3						
8 1,2,4-Trimethylbenzene	ND	7.4	ug/m3						
9 1,2-Dichlorobenzene	ND	9.0	ug/m3						
10 1,2-Dichloroethane	ND	1.2	ug/m3						
11 1,2-Dichloropropane	ND	6.9	ug/m3						
12 1,3,5-Trimethylbenzene	ND	7.4	ug/m3						
13 1,3-Butadiene	ND	0.66	ug/m3						
14 1,3-Dichlorobenzene	ND	9.0	ug/m3						
15 1,4-Dichlorobenzene	ND	9.0	ug/m3						
16 1,4-Dioxane	ND	5.4	ug/m3						
17 2,2,4-Trimethylpentane	ND	14	ug/m3						
18 2-Butanone	ND	8.8	ug/m3						
19 2-Hexanone	ND	12	ug/m3						
20 4-Methyl-2-pentanone	ND	12	ug/m3						
21 Acetone	ND	14	ug/m3						
22 Benzene	ND	4.8	ug/m3						
23 Benzyl Chloride	ND	1.6	ug/m3						
24 Bromodichloromethane	ND	2.0	ug/m3						
25 Bromoform	ND	15	ug/m3						
26 Bromomethane	ND	5.8	ug/m3						
27 Carbon Disulfide	ND	9.3	ug/m3						
28 Carbon Tetrachloride	ND	1.9	ug/m3						
29 Chlorobenzene	ND	6.9	ug/m3						
30 Chloroethane	ND	4.0	ug/m3						
31 Chloroform	ND	1.5	ug/m3						
32 Chloromethane	ND	3.1	ug/m3						
33 cis-1,2-Dichloroethene	ND	5.9	ug/m3						
34 cis-1,3-Dichloropropene	ND	6.8	ug/m3						
35 Cyclohexane	ND	10	ug/m3						
36 Dibromochloromethane	ND	1.0	ug/m3						
37 Dichlorodifluoromethane	ND	7.4	ug/m3						
38 Ethanol	ND	5.7	ug/m3						
39 Ethyl Acetate	ND	11	ug/m3						
40 Ethylbenzene	ND	13	ug/m3						
41 Ethylene Dibromide	ND	0.23	ug/m3						

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28550 Cabot Drive, Suite 500	Project Number: 30214036.00102	
Novi, MI 48377	Project Manager: Kaitlyn Hunt	Reported: 08/30/2024 15:35

Quality Control
(Continued)

Volatiles Analysis-GC/MS (TO-15) (Continued)

Analyte	Result/ Qual	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Blank (BDH0102-BLK1)				Prepared: 08/23/24 10:05 Analyzed: 08/25/24 15:05					
42 Hexachlorobutadiene	ND	1.3	ug/m3						
43 Isopropanol	ND	7.4	ug/m3						
44 m&p-Xylene	ND	13	ug/m3						
45 Methylene Chloride	ND	10	ug/m3						
46 MTBE	ND	5.4	ug/m3						
47 Naphthalene	ND	4.7	ug/m3						
48 n-Heptane	ND	12	ug/m3						
49 n-Hexane	ND	11	ug/m3						
50 n-Pentane	ND	4.4	ug/m3						
51 n-Propylbenzene	ND	7.4	ug/m3						
52 o-Xylene	ND	13	ug/m3						
53 sec-Butylbenzene	ND	1.6	ug/m3						
54 Styrene	ND	13	ug/m3						
55 tert-Butylbenzene	ND	1.6	ug/m3						
56 Tetrachloroethene	ND	10	ug/m3						
57 Tetrahydrofuran	ND	0.88	ug/m3						
58 Toluene	ND	5.7	ug/m3						
59 trans-1,2-Dichloroethene	ND	5.9	ug/m3						
60 trans-1,3-Dichloropropene	ND	6.8	ug/m3						
61 Trichloroethene	ND	0.40	ug/m3						
62 Trichlorofluoromethane	ND	8.4	ug/m3						
63 Vinyl Acetate	ND	11	ug/m3						
64 Vinyl Chloride	ND	3.8	ug/m3						
65 Xylenes	ND	26	ug/m3						
Surrogate: 4-Bromofluorobenzene(S)	*38*		*ug/m3*	*42.0*		*91*	*80-120*		

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Arcadis U.S., Inc. - Novi	Project: RACER Lansing	
28550 Cabot Drive, Suite 500	Project Number: 30214036.00102	
Novi, MI 48377	Project Manager: Kaitlyn Hunt	Reported: 08/30/2024 15:35

Quality Control
(Continued)

Volatiles Analysis-GC/MS (TO-15) (Continued)

Analyte	Result/ Qual	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
LCS (BDH0102-BS1)				Prepared: 08/23/24 10:05 Analyzed: 08/25/24 12:02					
1 1,1,1-Trichloroethane	72	8.2	ug/m3	71.4		101	70-130		
2 1,1,2,2-Tetrachloroethane	89	0.82	ug/m3	89.2		99	70-130		
3 1,1,2-Trichloroethane	70	1.6	ug/m3	71.4		98	70-130		
4 1,1,2-Trichlorotrifluoroethane	100	23	ug/m3	103		102	70-130		
5 1,1-Dichloroethane	59	6.1	ug/m3	53.0		111	70-130		
6 1,1-Dichloroethene	58	5.9	ug/m3	53.1		110	70-133		
7 1,2,4-Trichlorobenzene	100	22	ug/m3	96.4		104	70-140		
8 1,2,4-Trimethylbenzene	65	7.4	ug/m3	64.4		100	70-132		
9 1,2-Dichlorobenzene	71	9.0	ug/m3	78.1		91	70-130		
10 1,2-Dichloroethane	56	1.2	ug/m3	53.0		105	70-130		
11 1,2-Dichloropropane	70	6.9	ug/m3	60.5		116	70-130		
12 1,3,5-Trimethylbenzene	64	7.4	ug/m3	63.4		101	70-131		
13 1,3-Butadiene	29	0.66	ug/m3	29.0		102	70-134		
14 1,3-Dichlorobenzene	72	9.0	ug/m3	78.7		91	70-131		
15 1,4-Dichlorobenzene	72	9.0	ug/m3	78.1		93	70-134		
16 1,4-Dioxane	54	5.4	ug/m3	46.5		116	70-130		
17 2,2,4-Trimethylpentane	75	28	ug/m3	60.2		124	70-130		
18 2-Butanone	47	8.8	ug/m3	38.6		123	70-130		
19 2-Hexanone	66	12	ug/m3	52.8		125	70-139		
20 4-Methyl-2-pentanone	69	12	ug/m3	53.6		129	70-130		
21 Acetone	33	36	ug/m3	30.3		109	70-130		
22 Benzene	43	4.8	ug/m3	42.3		102	70-130		
23 Benzyl Chloride	71	1.6	ug/m3	67.8		105	70-150		
24 Bromodichloromethane	88	2.0	ug/m3	86.4		102	70-130		
25 Bromoform	130	15	ug/m3	134		94	70-138		
26 Bromomethane	47	5.8	ug/m3	49.5		96	70-133		
27 Carbon Disulfide	42	19	ug/m3	41.2		102	70-130		
28 Carbon Tetrachloride	77	1.9	ug/m3	79.2		97	70-131		
29 Chlorobenzene	57	14	ug/m3	60.3		94	70-130		
30 Chloroethane	36	4.0	ug/m3	33.6		106	70-130		
31 Chloroform	66	1.5	ug/m3	63.9		103	70-130		
32 Chloromethane	27	12	ug/m3	26.6		103	70-130		
33 cis-1,2-Dichloroethene	62	5.9	ug/m3	53.1		116	70-130		
34 cis-1,3-Dichloropropene	68	6.8	ug/m3	59.4		114	70-131		
35 Cyclohexane	55	10	ug/m3	45.1		123	70-130		
36 Dibromochloromethane	100	1.0	ug/m3	109		94	70-135		
37 Dichlorodifluoromethane	61	15	ug/m3	61.8		99	70-132		
38 Ethanol	24	11	ug/m3	25.9		91	70-130		
39 Ethyl Acetate	57	11	ug/m3	46.8		122	70-130		
40 Ethylbenzene	60	13	ug/m3	56.4		105	70-130		
41 Ethylene Dibromide	95	0.23	ug/m3	97.9		97	70-130		
42 Hexachlorobutadiene	120	1.3	ug/m3	140		84	70-134		
43 Isopropanol	37	15	ug/m3	31.3		119	54-144		
44 m&p-Xylene	110	13	ug/m3	113		98	70-130		

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Arcadis U.S., Inc. - Novi	Project: RACER Lansing	
28550 Cabot Drive, Suite 500	Project Number: 30214036.00102	
Novi, MI 48377	Project Manager: Kaitlyn Hunt	Reported: 08/30/2024 15:35

Quality Control
(Continued)

Volatiles Analysis-GC/MS (TO-15) (Continued)

Analyte	Result/ Qual	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
LCS (BDH0102-BS1)				Prepared: 08/23/24 10:05 Analyzed: 08/25/24 12:02					
45 Methylene Chloride	50	42	ug/m3	44.8		111	70-132		
46 MTBE	54	5.4	ug/m3	47.2		115	70-130		
47 Naphthalene	78	19	ug/m3	73.9		105	70-148		
48 n-Heptane	69	12	ug/m3	53.3		130	70-132		
49 n-Hexane	58	11	ug/m3	46.7		125	70-130		
50 n-Pentane	49	4.4	ug/m3	38.6		127	70-130		
51 n-Propylbenzene	68	7.4	ug/m3	63.9		107	70-130		
52 o-Xylene	58	13	ug/m3	56.4		103	70-130		
53 sec-Butylbenzene	74	4.9	ug/m3	72.7		101	70-130		
54 Styrene	57	13	ug/m3	55.8		102	70-130		
55 tert-Butylbenzene	72	4.9	ug/m3	71.9		100	70-130		
56 Tetrachloroethene	82	10	ug/m3	88.1		93	70-130		
57 Tetrahydrofuran	48	4.4	ug/m3	35.7		135	70-138		
58 Toluene	50	5.7	ug/m3	49.0		101	70-130		
59 trans-1,2-Dichloroethene	59	5.9	ug/m3	51.9		114	70-130		
60 trans-1,3-Dichloropropene	60	6.8	ug/m3	54.0		112	70-134		
61 Trichloroethene	72	0.40	ug/m3	69.3		105	70-130		
62 Trichlorofluoromethane	70	8.4	ug/m3	72.4		97	70-132		
63 Vinyl Acetate	54	11	ug/m3	47.5		114	70-131		
64 Vinyl Chloride	32	3.8	ug/m3	32.6		99	70-131		
Surrogate: 4-Bromofluorobenzene(S)	*40*		*ug/m3*	*42.0*		*94*	*80-120*		

The contents of this report apply to the sample(s) analyzed in accordance with the chain of custody document.
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Arcadis U.S., Inc. - Novi	Project: RACER Lansing	
28550 Cabot Drive, Suite 500	Project Number: 30214036.00102	
Novi, MI 48377	Project Manager: Kaitlyn Hunt	Reported: 08/30/2024 15:35

Quality Control
(Continued)

Volatiles Analysis-GC/MS (TO-15) (Continued)

Analyte	Result/ Qual	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
LCS Dup (BDH0102-BSD1)				Prepared: 08/23/24 10:05		Analyzed: 08/25/24 13:01			
1 1,1,1-Trichloroethane	71	8.2	ug/m3	71.4		99	70-130	2	20
2 1,1,2,2-Tetrachloroethane	88	0.82	ug/m3	89.2		98	70-130	1	20
3 1,1,2-Trichloroethane	69	1.6	ug/m3	71.4		97	70-130	2	20
4 1,1,2-Trichlorotrifluoroethane	100	23	ug/m3	103		101	70-130	1	20
5 1,1-Dichloroethane	58	6.1	ug/m3	53.0		110	70-130	1	20
6 1,1-Dichloroethene	57	5.9	ug/m3	53.1		108	70-133	1	20
7 1,2,4-Trichlorobenzene	100	22	ug/m3	96.4		106	70-140	1	20
8 1,2,4-Trimethylbenzene	64	7.4	ug/m3	64.4		99	70-132	2	20
9 1,2-Dichlorobenzene	70	9.0	ug/m3	78.1		89	70-130	2	20
10 1,2-Dichloroethane	55	1.2	ug/m3	53.0		104	70-130	0.8	20
11 1,2-Dichloropropane	70	6.9	ug/m3	60.5		116	70-130	0.07	20
12 1,3,5-Trimethylbenzene	63	7.4	ug/m3	63.4		100	70-131	1	20
13 1,3-Butadiene	29	0.66	ug/m3	29.0		101	70-134	1	20
14 1,3-Dichlorobenzene	70	9.0	ug/m3	78.7		89	70-131	2	20
15 1,4-Dichlorobenzene	71	9.0	ug/m3	78.1		91	70-134	1	20
16 1,4-Dioxane	53	5.4	ug/m3	46.5		114	70-130	1	20
17 2,2,4-Trimethylpentane	74	28	ug/m3	60.2		122	70-130	1	20
18 2-Butanone	47	8.8	ug/m3	38.6		121	70-130	2	20
19 2-Hexanone	65	12	ug/m3	52.8		123	70-139	1	20
20 4-Methyl-2-pentanone	69	12	ug/m3	53.6		128	70-130	0.4	20
21 Acetone	32	36	ug/m3	30.3		107	70-130	2	20
22 Benzene	43	4.8	ug/m3	42.3		102	70-130	0.2	20
23 Benzyl Chloride	70	1.6	ug/m3	67.8		104	70-150	1	20
24 Bromodichloromethane	87	2.0	ug/m3	86.4		100	70-130	1	20
25 Bromoform	120	15	ug/m3	134		92	70-138	2	20
26 Bromomethane	47	5.8	ug/m3	49.5		94	70-133	1	20
27 Carbon Disulfide	41	19	ug/m3	41.2		100	70-130	2	20
28 Carbon Tetrachloride	77	1.9	ug/m3	79.2		97	70-131	0.4	20
29 Chlorobenzene	56	14	ug/m3	60.3		93	70-130	1	20
30 Chloroethane	36	4.0	ug/m3	33.6		107	70-130	0.6	20
31 Chloroform	66	1.5	ug/m3	63.9		103	70-130	0.8	20
32 Chloromethane	27	12	ug/m3	26.6		103	70-130	0.5	20
33 cis-1,2-Dichloroethene	61	5.9	ug/m3	53.1		114	70-130	2	20
34 cis-1,3-Dichloropropene	68	6.8	ug/m3	59.4		115	70-131	0.6	20
35 Cyclohexane	56	10	ug/m3	45.1		124	70-130	0.7	20
36 Dibromochloromethane	100	1.0	ug/m3	109		93	70-135	1	20
37 Dichlorodifluoromethane	60	15	ug/m3	61.8		98	70-132	1	20
38 Ethanol	23	11	ug/m3	25.9		90	70-130	0.8	20
39 Ethyl Acetate	56	11	ug/m3	46.8		120	70-130	2	20
40 Ethylbenzene	59	13	ug/m3	56.4		104	70-130	1	20
41 Ethylene Dibromide	94	0.23	ug/m3	97.9		96	70-130	2	20
42 Hexachlorobutadiene	120	1.3	ug/m3	140		84	70-134	0	20
43 Isopropanol	37	15	ug/m3	31.3		117	54-144	1	20
44 m&p-Xylene	110	13	ug/m3	113		97	70-130	1	20

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Arcadis U.S., Inc. - Novi	Project: RACER Lansing	
28550 Cabot Drive, Suite 500	Project Number: 30214036.00102	
Novi, MI 48377	Project Manager: Kaitlyn Hunt	Reported: 08/30/2024 15:35

Quality Control
(Continued)

Volatiles Analysis-GC/MS (TO-15) (Continued)

Analyte	Result/ Qual	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
LCS Dup (BDH0102-BSD1)				Prepared: 08/23/24 10:05	Analyzed: 08/25/24 13:01				
45 Methylene Chloride	49	42	ug/m3	44.8		110	70-132	1	20
46 MTBE	54	5.4	ug/m3	47.2		114	70-130	0.8	20
47 Naphthalene	78	19	ug/m3	73.9		106	70-148	0.5	20
48 n-Heptane	70	12	ug/m3	53.3		131	70-132	0.6	20
49 n-Hexane	57	11	ug/m3	46.7		123	70-130	2	20
50 n-Pentane	48	4.4	ug/m3	38.6		124	70-130	2	20
51 n-Propylbenzene	67	7.4	ug/m3	63.9		105	70-130	2	20
52 o-Xylene	57	13	ug/m3	56.4		101	70-130	1	20
53 sec-Butylbenzene	73	4.9	ug/m3	72.7		101	70-130	0.8	20
54 Styrene	56	13	ug/m3	55.8		101	70-130	1	20
55 tert-Butylbenzene	70	4.9	ug/m3	71.9		98	70-130	2	20
56 Tetrachloroethene	81	10	ug/m3	88.1		92	70-130	2	20
57 Tetrahydrofuran	48	4.4	ug/m3	35.7		133	70-138	1	20
58 Toluene	49	5.7	ug/m3	49.0		101	70-130	0.8	20
59 trans-1,2-Dichloroethene	58	5.9	ug/m3	51.9		113	70-130	1	20
60 trans-1,3-Dichloropropene	60	6.8	ug/m3	54.0		111	70-134	0.4	20
61 Trichloroethene	72	0.40	ug/m3	69.3		104	70-130	0.5	20
62 Trichlorofluoromethane	69	8.4	ug/m3	72.4		96	70-132	2	20
63 Vinyl Acetate	54	11	ug/m3	47.5		113	70-131	1	20
64 Vinyl Chloride	32	3.8	ug/m3	32.6		98	70-131	2	20
Surrogate: 4-Bromofluorobenzene(S)	*39*		*ug/m3*	*42.0*		*92*	*80-120*		

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Arcadis U.S., Inc. - Novi	Project: RACER Lansing	
28550 Cabot Drive, Suite 500	Project Number: 30214036.00102	
Novi, MI 48377	Project Manager: Kaitlyn Hunt	Reported: 08/30/2024 15:35

Notes and Definitions

Item	Definition
V+	Recovery in the associated continuing calibration verification sample (CCV) exceeds the upper control limit. Results may be biased high.
Dry	Sample results reported on a dry weight basis.
MDL	Method Detection Limit (only displays if reported to the MDL)
ND	Analyte NOT DETECTED at or above the reporting limit.
DF	Dilution Factor
DL	Detection Limit
‡	Parameter not included in NELAC Scope of Analysis.
RPD	Relative Percent Difference
%REC	Percent Recovery
Source	Sample that was matrix spiked or duplicated.

PQL, Practical Quantitation Limit = Method Reporting Limit (MRL).

Accreditation Number(s):
MI001292024-1

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Arcadis U.S., Inc. - Novi	Project: RACER Lansing	
28550 Cabot Drive, Suite 500	Project Number: 30214036.00102	
Novi, MI 48377	Project Manager: Kaitlyn Hunt	Reported: 08/30/2024 15:35

WORK ORDER

24H0131

Printed: 08/30/2024 3:35 pm

Project: **RACER Lansing**
Project Number: **30214036.00102**
Project Manager: **Jacob Sutherlund**
PO Number:

Report To:

Arcadis U.S., Inc. - Novi
Kaitlyn Hunt
28550 Cabot Drive, Suite 500
Novi, MI 48377
Phone: 2489942240
Fax: 2489942241

Invoice To:

Arcadis U.S., Inc. - Novi
Kaitlyn Hunt
28550 Cabot Drive, Suite 500
Novi, MI 48377
Phone: 2489942240
Fax: 2489942241

Date Received: 08/20/2024 02:15 PM
Date Due: 08/27/2024 (5.00 day TAT)

Logged In By: Kelly Williams
Received By: Kelly Williams

Analysis	Comments
24H0131-01 SVMP-20-01-082024 [Air] Sampled 8/20/2024 10:56:00AM	
TO-15-MI Soil Gas/Subslab (65 Compound	
24H0131-02 Dup-01-082024 [Air] Sampled 8/20/2024 12:00:00AM	
TO-15-MI Soil Gas/Subslab (65 Compound	

24H0131 **Sample Receipt Log**

Default Cooler

Samples Received at: **20.0°C**

Were Custody Seals present and signed?	No	Container/preservative correct for test requested?	Yes
Received on Ice and within proper temp?	No	Sufficient amount sent for tests requested?	Yes
Were all Air Hg and PCB tubes received at ambient?	No	Required containers sealed in separate bags?	No
Were all TO-15 samples received at ambient?	Yes	Were all samples inspected and sampled correctly?	Yes
Was a chain of custody received?	Yes	Were bubbles absent in volatile samples?	No
COCs complete/signed in the appropriate places?	Yes	Sufficient remaining holding time for analyses?	Yes
Were all samples listed on COC received?	Yes	If Applicable pH documented for necessary samples?	No
Did all samples/container labels agree with COCs?	Yes	If applicable, was the chlorine test negative?	No
Did all containers arrive in good condition?	Yes	If applicable, samples free of oxidizers?	No
Containers Intact	Yes	Thermometer # : 10003954 used?	No

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Fibertec environmental services

Analytical Laboratory

1914 Holloway Drive
Holt, MI 48842
Phone: 517 699 0345
Fax: 517 699 0388
email: lab@fibertec.us

8660 S. Mackinaw Trail
Cadillac, MI 49601
Phone: 231 775 8368
Fax: 231 775 8584

Geoprobe

11766 E. Grand River Rd.
Brighton, MI 48116
Phone: 810 220 3300
Fax: 810 220 3311

Chain of Custody # 223628
PAGE 1 of 1

Client Name: Arcadis
Contact Person: Kaitlyn Hunt
Project Name/ Number: RACER Lansing / 30214036.00102
Email distribution list: Kaitlyn.Hunt@arcadis.com
Tiffany.Linder@arcadis.com
Quote#
Purchase Order#

Date	Time	Sample #	Client Sample Descriptor	MATRIX (SEE RIGHT CORNER FOR CODE)	# OF CONTAINERS	PARAMETERS: TO-15	HOLD SAMPLE
8/20/24	1056	1	SVMP-20-01_082024	A	1	X	
8/20/24	—	2	DUP-01_082024	A	1	X	

Matrix Code: S Soil; A Air; O Oil; P Wipe; GW Ground Water; SW Surface Water; WW Waste Water; X Other: Specify

Deliverables: Level 2; Level 3; Level 4; EDD

Remarks:

Received By Lab
AUG 20 2024
Initials KW

Comments:

Sampled/Relinquished By: [signature] / Austin Westhuis / Arcadis — Date/ Time 8/20/24 1415 — Received By: [signature]
Relinquished By: — Date/ Time — Received By:
Relinquished By: — Date/ Time — Received By Laboratory:

Turnaround Time ALL RESULTS WILL BE SENT BY THE END OF THE BUSINESS DAY

_____1 bus. day _____2 bus. days _____3 bus. days _____4 bus. days
X 5-7 bus. days (standard) ~~Other (specify time/date requirement):~~

LAB USE ONLY

Fibertec project number: 24HD131
Temperature upon receipt at Lab: Ambient

Please see back for terms and conditions

Metiri Group - Holt
1914 Holloway Dr, Holt, MI 48842 - Phone (517) 699-0345 - www.metirigroup.com

December 10, 2024

Kaitlyn Hunt
Arcadis U.S., Inc. - Novi
28550 Cabot Drive, Suite 500
Novi, MI 48377

RE: RACER Lansing
24K0273

Thank you for selecting Metiri Group - Holt as your analytical laboratory. The samples submitted have been analyzed in accordance with all method and NELAC standards, as applicable. Any exceptions to compliance are noted in the report.

Please note that TO-15 samples will be disposed of 7 calendar days after the reporting date. All other samples will be disposed of 30 days after the reporting date.

If you have any questions regarding these results, or if we may be of further assistance to you, please contact us at (517) 699-0345.

Sincerely,



Jacob Sutherlund
Project Manager
jacob.sutherlund@metirigroup.com
517-273-4922

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Arcadis U.S., Inc. - Novi	Project: RACER Lansing	
28550 Cabot Drive, Suite 500	Project Number: 30214036.00102	
Novi, MI 48377	Project Manager: Kaitlyn Hunt	Reported: 12/10/2024 10:56

Samples in this Report

Lab ID	Sample	Matrix	Date Sampled	Date Received
24K0273-01	SVMP-20-01_112024	Air	11/20/2024 11:10	11/20/2024
24K0273-02	Dup-01_112024	Air	11/20/2024 00:00	11/20/2024

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Arcadis U.S., Inc. - Novi	Project: RACER Lansing	
28550 Cabot Drive, Suite 500	Project Number: 30214036.00102	
Novi, MI 48377	Project Manager: Kaitlyn Hunt	Reported: 12/10/2024 10:56

Sample Results

Sample: SVMP-20-01_112024
24K0273-01 (Air)

	Analyte	Result/Qual	PQL	Units	Date Analyzed	DF	Method	Prep Batch
Volatiles Analysis-GC/MS (TO-15)								
1	1,1,1-Trichloroethane	ND	33	ug/m3	11/21/24	1	EPA TO-15	BDK0419
2	1,1,2,2-Tetrachloroethane	ND	3.3	ug/m3	11/21/24	1	EPA TO-15	BDK0419
3	1,1,2-Trichloroethane	ND	6.5	ug/m3	11/21/24	1	EPA TO-15	BDK0419
4	1,1,2-Trichlorotrifluoroethane	ND	46	ug/m3	11/21/24	1	EPA TO-15	BDK0419
5	1,1-Dichloroethane	ND	24	ug/m3	11/21/24	1	EPA TO-15	BDK0419
6	1,1-Dichloroethene	ND	24	ug/m3	11/21/24	1	EPA TO-15	BDK0419
7	1,2,4-Trichlorobenzene	ND	22	ug/m3	11/21/24	1	EPA TO-15	BDK0419
8	1,2,4-Trimethylbenzene	ND	29	ug/m3	11/21/24	1	EPA TO-15	BDK0419
9	1,2-Dichlorobenzene	ND	36	ug/m3	11/21/24	1	EPA TO-15	BDK0419
10	1,2-Dichloroethane	ND	4.9	ug/m3	11/21/24	1	EPA TO-15	BDK0419
11	1,2-Dichloropropane	ND	28	ug/m3	11/21/24	1	EPA TO-15	BDK0419
12	1,3,5-Trimethylbenzene	ND	29	ug/m3	11/21/24	1	EPA TO-15	BDK0419
13	1,3-Butadiene	ND	2.7	ug/m3	11/21/24	1	EPA TO-15	BDK0419
14	1,3-Dichlorobenzene	ND	36	ug/m3	11/21/24	1	EPA TO-15	BDK0419
15	1,4-Dichlorobenzene	ND	36	ug/m3	11/21/24	1	EPA TO-15	BDK0419
16	1,4-Dioxane	ND	22	ug/m3	11/21/24	1	EPA TO-15	BDK0419
17	2,2,4-Trimethylpentane	ND	56	ug/m3	11/21/24	1	EPA TO-15	BDK0419
18	2-Butanone	ND	35	ug/m3	11/21/24	1	EPA TO-15	BDK0419
19	2-Hexanone	ND	49	ug/m3	11/21/24	1	EPA TO-15	BDK0419
20	4-Methyl-2-pentanone	ND	49	ug/m3	11/21/24	1	EPA TO-15	BDK0419
21	Acetone	ND	57	ug/m3	11/21/24	1	EPA TO-15	BDK0419
22	Benzene	ND	19	ug/m3	11/21/24	1	EPA TO-15	BDK0419
23	Benzyl Chloride	ND	6.2	ug/m3	11/21/24	1	EPA TO-15	BDK0419
24	Bromodichloromethane	ND	8.0	ug/m3	11/21/24	1	EPA TO-15	BDK0419
25	Bromoform	ND	62	ug/m3	11/21/24	1	EPA TO-15	BDK0419
26	Bromomethane	ND	23	ug/m3	11/21/24	1	EPA TO-15	BDK0419
27	Carbon Disulfide	ND	37	ug/m3	11/21/24	1	EPA TO-15	BDK0419
28	Carbon Tetrachloride	ND	7.5	ug/m3	11/21/24	1	EPA TO-15	BDK0419
29	Chlorobenzene	ND	28	ug/m3	11/21/24	1	EPA TO-15	BDK0419
30	Chloroethane	ND	16	ug/m3	11/21/24	1	EPA TO-15	BDK0419
31	Chloroform	ND	5.9	ug/m3	11/21/24	1	EPA TO-15	BDK0419
32	Chloromethane	ND	12	ug/m3	11/21/24	1	EPA TO-15	BDK0419

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Arcadis U.S., Inc. - Novi	Project: RACER Lansing	
28550 Cabot Drive, Suite 500	Project Number: 30214036.00102	
Novi, MI 48377	Project Manager: Kaitlyn Hunt	Reported: 12/10/2024 10:56

Sample Results
(Continued)

Sample: SVMP-20-01_112024 (Continued)
24K0273-01 (Air)

	Analyte	Result	Qual	PQL	Units	Date Analyzed	DF	Method	Prep Batch
Volatiles Analysis-GC/MS (TO-15) (Continued)									
33	cis-1,2-Dichloroethene	ND		24	ug/m3	11/21/24	1	EPA TO-15	BDK0419
34	cis-1,3-Dichloropropene	ND		27	ug/m3	11/21/24	1	EPA TO-15	BDK0419
35	Cyclohexane	ND		41	ug/m3	11/21/24	1	EPA TO-15	BDK0419
36	Dibromochloromethane	ND		4.1	ug/m3	11/21/24	1	EPA TO-15	BDK0419
37	Dichlorodifluoromethane	ND		30	ug/m3	11/21/24	1	EPA TO-15	BDK0419
38	Ethanol	ND		23	ug/m3	11/21/24	1	EPA TO-15	BDK0419
39	Ethyl Acetate	ND		43	ug/m3	11/21/24	1	EPA TO-15	BDK0419
40	Ethylbenzene	ND		52	ug/m3	11/21/24	1	EPA TO-15	BDK0419
41	Ethylene Dibromide	ND		0.92	ug/m3	11/21/24	1	EPA TO-15	BDK0419
42	Hexachlorobutadiene	ND	ICV-, L-	5.1	ug/m3	11/21/24	1	EPA TO-15	BDK0419
43	Isopropanol	ND		29	ug/m3	11/21/24	1	EPA TO-15	BDK0419
44	m&p-Xylene	ND		52	ug/m3	11/21/24	1	EPA TO-15	BDK0419
45	Methylene Chloride	ND		42	ug/m3	11/21/24	1	EPA TO-15	BDK0419
46	MTBE	ND		22	ug/m3	11/21/24	1	EPA TO-15	BDK0419
47	Naphthalene	ND	L-	19	ug/m3	11/21/24	1	EPA TO-15	BDK0419
48	n-Heptane	ND		49	ug/m3	11/21/24	1	EPA TO-15	BDK0419
49	n-Hexane	ND		42	ug/m3	11/21/24	1	EPA TO-15	BDK0419
‡ 50	n-Pentane	ND		18	ug/m3	11/21/24	1	EPA TO-15	BDK0419
51	n-Propylbenzene	ND		29	ug/m3	11/21/24	1	EPA TO-15	BDK0419
52	o-Xylene	ND		52	ug/m3	11/21/24	1	EPA TO-15	BDK0419
53	sec-Butylbenzene	ND		6.6	ug/m3	11/21/24	1	EPA TO-15	BDK0419
54	Styrene	ND		51	ug/m3	11/21/24	1	EPA TO-15	BDK0419
55	tert-Butylbenzene	ND		6.6	ug/m3	11/21/24	1	EPA TO-15	BDK0419
56	Tetrachloroethene	ND		41	ug/m3	11/21/24	1	EPA TO-15	BDK0419
57	Tetrahydrofuran	ND		3.5	ug/m3	11/21/24	1	EPA TO-15	BDK0419
58	Toluene	ND		23	ug/m3	11/21/24	1	EPA TO-15	BDK0419
59	trans-1,2-Dichloroethene	ND		24	ug/m3	11/21/24	1	EPA TO-15	BDK0419
60	trans-1,3-Dichloropropene	ND		27	ug/m3	11/21/24	1	EPA TO-15	BDK0419
61	Trichloroethene	ND		1.6	ug/m3	11/21/24	1	EPA TO-15	BDK0419
62	Trichlorofluoromethane	ND		34	ug/m3	11/21/24	1	EPA TO-15	BDK0419
63	Vinyl Acetate	ND		42	ug/m3	11/21/24	1	EPA TO-15	BDK0419
64	Vinyl Chloride	ND		15	ug/m3	11/21/24	1	EPA TO-15	BDK0419

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28550 Cabot Drive, Suite 500	Project Number: 30214036.00102	
Novi, MI 48377	Project Manager: Kaitlyn Hunt	Reported: 12/10/2024 10:56

Sample Results
(Continued)

Sample: SVMP-20-01_112024 (Continued)
24K0273-01 (Air)

Analyte	Result/Qual	PQL	Units	Date Analyzed	DF	Method	Prep Batch
Volatiles Analysis-GC/MS (TO-15) (Continued)							
65 Xylenes	ND	100	ug/m3	11/21/24	1	EPA TO-15	BDK0419
Surrogate: 4-Bromofluorobenzene(S)	*98%*	*80-120*		*11/21/24*	*1*	*EPA TO-15*	

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28550 Cabot Drive, Suite 500	Project Number: 30214036.00102	
Novi, MI 48377	Project Manager: Kaitlyn Hunt	Reported: 12/10/2024 10:56

Sample Results
(Continued)

Sample: Dup-01_112024
24K0273-02 (Air)

	Analyte	Result/Qual	PQL	Units	Date Analyzed	DF	Method	Prep Batch
Volatiles Analysis-GC/MS (TO-15)								
1	1,1,1-Trichloroethane	ND	33	ug/m3	11/21/24	1	EPA TO-15	BDK0419
2	1,1,2,2-Tetrachloroethane	ND	3.3	ug/m3	11/21/24	1	EPA TO-15	BDK0419
3	1,1,2-Trichloroethane	ND	6.5	ug/m3	11/21/24	1	EPA TO-15	BDK0419
4	1,1,2-Trichlorotrifluoroethane	ND	46	ug/m3	11/21/24	1	EPA TO-15	BDK0419
5	1,1-Dichloroethane	ND	24	ug/m3	11/21/24	1	EPA TO-15	BDK0419
6	1,1-Dichloroethene	ND	24	ug/m3	11/21/24	1	EPA TO-15	BDK0419
7	1,2,4-Trichlorobenzene	ND	22	ug/m3	11/21/24	1	EPA TO-15	BDK0419
8	1,2,4-Trimethylbenzene	ND	29	ug/m3	11/21/24	1	EPA TO-15	BDK0419
9	1,2-Dichlorobenzene	ND	36	ug/m3	11/21/24	1	EPA TO-15	BDK0419
10	1,2-Dichloroethane	ND	4.9	ug/m3	11/21/24	1	EPA TO-15	BDK0419
11	1,2-Dichloropropane	ND	28	ug/m3	11/21/24	1	EPA TO-15	BDK0419
12	1,3,5-Trimethylbenzene	ND	29	ug/m3	11/21/24	1	EPA TO-15	BDK0419
13	1,3-Butadiene	ND	2.7	ug/m3	11/21/24	1	EPA TO-15	BDK0419
14	1,3-Dichlorobenzene	ND	36	ug/m3	11/21/24	1	EPA TO-15	BDK0419
15	1,4-Dichlorobenzene	ND	36	ug/m3	11/21/24	1	EPA TO-15	BDK0419
16	1,4-Dioxane	ND	22	ug/m3	11/21/24	1	EPA TO-15	BDK0419
17	2,2,4-Trimethylpentane	ND	56	ug/m3	11/21/24	1	EPA TO-15	BDK0419
18	2-Butanone	ND	35	ug/m3	11/21/24	1	EPA TO-15	BDK0419
19	2-Hexanone	ND	49	ug/m3	11/21/24	1	EPA TO-15	BDK0419
20	4-Methyl-2-pentanone	ND	49	ug/m3	11/21/24	1	EPA TO-15	BDK0419
21	Acetone	ND	57	ug/m3	11/21/24	1	EPA TO-15	BDK0419
22	Benzene	ND	19	ug/m3	11/21/24	1	EPA TO-15	BDK0419
23	Benzyl Chloride	ND	6.2	ug/m3	11/21/24	1	EPA TO-15	BDK0419
24	Bromodichloromethane	ND	8.0	ug/m3	11/21/24	1	EPA TO-15	BDK0419
25	Bromoform	ND	62	ug/m3	11/21/24	1	EPA TO-15	BDK0419
26	Bromomethane	ND	23	ug/m3	11/21/24	1	EPA TO-15	BDK0419
27	Carbon Disulfide	ND	37	ug/m3	11/21/24	1	EPA TO-15	BDK0419
28	Carbon Tetrachloride	ND	7.5	ug/m3	11/21/24	1	EPA TO-15	BDK0419
29	Chlorobenzene	ND	28	ug/m3	11/21/24	1	EPA TO-15	BDK0419
30	Chloroethane	ND	16	ug/m3	11/21/24	1	EPA TO-15	BDK0419
31	Chloroform	ND	5.9	ug/m3	11/21/24	1	EPA TO-15	BDK0419
32	Chloromethane	ND	12	ug/m3	11/21/24	1	EPA TO-15	BDK0419

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28550 Cabot Drive, Suite 500	Project Number: 30214036.00102	
Novi, MI 48377	Project Manager: Kaitlyn Hunt	Reported: 12/10/2024 10:56

Sample Results
(Continued)

Sample: Dup-01_112024 (Continued)
24K0273-02 (Air)

	Analyte	Result	Qual	PQL	Units	Date Analyzed	DF	Method	Prep Batch
Volatiles Analysis-GC/MS (TO-15) (Continued)									
33	cis-1,2-Dichloroethene	ND		24	ug/m3	11/21/24	1	EPA TO-15	BDK0419
34	cis-1,3-Dichloropropene	ND		27	ug/m3	11/21/24	1	EPA TO-15	BDK0419
35	Cyclohexane	ND		41	ug/m3	11/21/24	1	EPA TO-15	BDK0419
36	Dibromochloromethane	ND		4.1	ug/m3	11/21/24	1	EPA TO-15	BDK0419
37	Dichlorodifluoromethane	ND		30	ug/m3	11/21/24	1	EPA TO-15	BDK0419
38	Ethanol	ND		23	ug/m3	11/21/24	1	EPA TO-15	BDK0419
39	Ethyl Acetate	ND		43	ug/m3	11/21/24	1	EPA TO-15	BDK0419
40	Ethylbenzene	ND		52	ug/m3	11/21/24	1	EPA TO-15	BDK0419
41	Ethylene Dibromide	ND		0.92	ug/m3	11/21/24	1	EPA TO-15	BDK0419
42	Hexachlorobutadiene	ND	ICV-, L-	5.1	ug/m3	11/21/24	1	EPA TO-15	BDK0419
43	Isopropanol	ND		29	ug/m3	11/21/24	1	EPA TO-15	BDK0419
44	m&p-Xylene	ND		52	ug/m3	11/21/24	1	EPA TO-15	BDK0419
45	Methylene Chloride	ND		42	ug/m3	11/21/24	1	EPA TO-15	BDK0419
46	MTBE	ND		22	ug/m3	11/21/24	1	EPA TO-15	BDK0419
47	Naphthalene	ND	L-	19	ug/m3	11/21/24	1	EPA TO-15	BDK0419
48	n-Heptane	ND		49	ug/m3	11/21/24	1	EPA TO-15	BDK0419
49	n-Hexane	ND		42	ug/m3	11/21/24	1	EPA TO-15	BDK0419
‡ 50	n-Pentane	ND		18	ug/m3	11/21/24	1	EPA TO-15	BDK0419
51	n-Propylbenzene	ND		29	ug/m3	11/21/24	1	EPA TO-15	BDK0419
52	o-Xylene	ND		52	ug/m3	11/21/24	1	EPA TO-15	BDK0419
53	sec-Butylbenzene	ND		6.6	ug/m3	11/21/24	1	EPA TO-15	BDK0419
54	Styrene	ND		51	ug/m3	11/21/24	1	EPA TO-15	BDK0419
55	tert-Butylbenzene	ND		6.6	ug/m3	11/21/24	1	EPA TO-15	BDK0419
56	Tetrachloroethene	ND		41	ug/m3	11/21/24	1	EPA TO-15	BDK0419
57	Tetrahydrofuran	ND		3.5	ug/m3	11/21/24	1	EPA TO-15	BDK0419
58	Toluene	ND		23	ug/m3	11/21/24	1	EPA TO-15	BDK0419
59	trans-1,2-Dichloroethene	ND		24	ug/m3	11/21/24	1	EPA TO-15	BDK0419
60	trans-1,3-Dichloropropene	ND		27	ug/m3	11/21/24	1	EPA TO-15	BDK0419
61	Trichloroethene	ND		1.6	ug/m3	11/21/24	1	EPA TO-15	BDK0419
62	Trichlorofluoromethane	ND		34	ug/m3	11/21/24	1	EPA TO-15	BDK0419
63	Vinyl Acetate	ND		42	ug/m3	11/21/24	1	EPA TO-15	BDK0419
64	Vinyl Chloride	ND		15	ug/m3	11/21/24	1	EPA TO-15	BDK0419

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28550 Cabot Drive, Suite 500	Project Number: 30214036.00102	
Novi, MI 48377	Project Manager: Kaitlyn Hunt	Reported: 12/10/2024 10:56

Sample Results
(Continued)

Sample: Dup-01_112024 (Continued)
24K0273-02 (Air)

Analyte	Result /Qual	PQL	Units	Date Analyzed	DF	Method	Prep Batch
Volatiles Analysis-GC/MS (TO-15) (Continued)							
65 Xylenes	ND	100	ug/m3	11/21/24	1	EPA TO-15	BDK0419
Surrogate: 4-Bromofluorobenzene(S)	*100%*	*80-120*		*11/21/24*	*1*	*EPA TO-15*	

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Arcadis U.S., Inc. - Novi
28550 Cabot Drive, Suite 500
Novi, MI 48377

Project: RACER Lansing
Project Number: 30214036.00102
Project Manager: Kaitlyn Hunt

Reported: 12/10/2024 10:56

PREPARATION BATCH SUMMARY

EPA TO-15

Laboratory: Metiri Group - Holt

Client:

Batch: BDK0419 Batch Matrix: Air Preparation: TO-15

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT mL	FINAL VOL. ml
SVMP-20-01_112024	24K0273-01	11/21/24 14:35	100.0000	400
Dup-01_112024	24K0273-02	11/21/24 14:35	100.0000	400
Blank	BDK0419-BLK1	11/20/24 16:46	400.0000	400
LCS	BDK0419-BS1	11/20/24 16:46	400.0000	400
LCS Dup	BDK0419-BSD1	11/20/24 16:46	400.0000	400

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Novi, MI 48377	Project Manager: Kaitlyn Hunt	Reported: 12/10/2024 10:56

Quality Control

Volatiles Analysis-GC/MS (TO-15)

Analyte	Result/ Qual	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Method: EPA TO-15									
Batch: BDK0419 - TO-15									
Blank (BDK0419-BLK1)				Prepared: 11/20/24 16:46 Analyzed: 11/21/24 14:49					
1 1,1,1-Trichloroethane	ND	8.2	ug/m3						
2 1,1,2,2-Tetrachloroethane	ND	0.82	ug/m3						
3 1,1,2-Trichloroethane	ND	1.6	ug/m3						
4 1,1,2-Trichlorotrifluoroethane	ND	11	ug/m3						
5 1,1-Dichloroethane	ND	6.1	ug/m3						
6 1,1-Dichloroethene	ND	5.9	ug/m3						
7 1,2,4-Trichlorobenzene	ND	5.6	ug/m3						
8 1,2,4-Trimethylbenzene	ND	7.4	ug/m3						
9 1,2-Dichlorobenzene	ND	9.0	ug/m3						
10 1,2-Dichloroethane	ND	1.2	ug/m3						
11 1,2-Dichloropropane	ND	6.9	ug/m3						
12 1,3,5-Trimethylbenzene	ND	7.4	ug/m3						
13 1,3-Butadiene	ND	0.66	ug/m3						
14 1,3-Dichlorobenzene	ND	9.0	ug/m3						
15 1,4-Dichlorobenzene	ND	9.0	ug/m3						
16 1,4-Dioxane	ND	5.4	ug/m3						
17 2,2,4-Trimethylpentane	ND	14	ug/m3						
18 2-Butanone	ND	8.8	ug/m3						
19 2-Hexanone	ND	12	ug/m3						
20 4-Methyl-2-pentanone	ND	12	ug/m3						
21 Acetone	ND	14	ug/m3						
22 Benzene	ND	4.8	ug/m3						
23 Benzyl Chloride	ND	1.6	ug/m3						
24 Bromodichloromethane	ND	2.0	ug/m3						
25 Bromoform	ND	15	ug/m3						
26 Bromomethane	ND	5.8	ug/m3						
27 Carbon Disulfide	ND	9.3	ug/m3						
28 Carbon Tetrachloride	ND	1.9	ug/m3						
29 Chlorobenzene	ND	6.9	ug/m3						
30 Chloroethane	ND	4.0	ug/m3						
31 Chloroform	ND	1.5	ug/m3						
32 Chloromethane	ND	3.1	ug/m3						
33 cis-1,2-Dichloroethene	ND	5.9	ug/m3						
34 cis-1,3-Dichloropropene	ND	6.8	ug/m3						
35 Cyclohexane	ND	10	ug/m3						
36 Dibromochloromethane	ND	1.0	ug/m3						
37 Dichlorodifluoromethane	ND	7.4	ug/m3						
38 Ethanol	ND	5.7	ug/m3						
39 Ethyl Acetate	ND	11	ug/m3						
40 Ethylbenzene	ND	13	ug/m3						
41 Ethylene Dibromide	ND	0.23	ug/m3						

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Novi, MI 48377	Project Manager: Kaitlyn Hunt	Reported: 12/10/2024 10:56

Quality Control
(Continued)

Volatiles Analysis-GC/MS (TO-15) (Continued)

Analyte	Result/ Qual	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Blank (BDK0419-BLK1)				Prepared: 11/20/24 16:46 Analyzed: 11/21/24 14:49					
42 Hexachlorobutadiene	ND ICV-	1.3	ug/m3						
43 Isopropanol	ND	7.4	ug/m3						
44 m&p-Xylene	ND	13	ug/m3						
45 Methylene Chloride	ND	10	ug/m3						
46 MTBE	ND	5.4	ug/m3						
47 Naphthalene	ND	4.7	ug/m3						
48 n-Heptane	ND	12	ug/m3						
49 n-Hexane	ND	11	ug/m3						
50 n-Pentane	ND	4.4	ug/m3						
51 n-Propylbenzene	ND	7.4	ug/m3						
52 o-Xylene	ND	13	ug/m3						
53 sec-Butylbenzene	ND	1.6	ug/m3						
54 Styrene	ND	13	ug/m3						
55 tert-Butylbenzene	ND	1.6	ug/m3						
56 Tetrachloroethene	ND	10	ug/m3						
57 Tetrahydrofuran	ND	0.88	ug/m3						
58 Toluene	ND	5.7	ug/m3						
59 trans-1,2-Dichloroethene	ND	5.9	ug/m3						
60 trans-1,3-Dichloropropene	ND	6.8	ug/m3						
61 Trichloroethene	ND	0.40	ug/m3						
62 Trichlorofluoromethane	ND	8.4	ug/m3						
63 Vinyl Acetate	ND	11	ug/m3						
64 Vinyl Chloride	ND	3.8	ug/m3						
65 Xylenes	ND	26	ug/m3						
Surrogate: 4-Bromofluorobenzene(S)	*41*		*ug/m3*	*42.0*		*98*	*80-120*		

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Arcadis U.S., Inc. - Novi	Project: RACER Lansing	
28550 Cabot Drive, Suite 500	Project Number: 30214036.00102	
Novi, MI 48377	Project Manager: Kaitlyn Hunt	Reported: 12/10/2024 10:56

Quality Control
(Continued)

Volatiles Analysis-GC/MS (TO-15) (Continued)

Analyte	Result/	Qual	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
LCS (BDK0419-BS1)					Prepared: 11/20/24 16:46		Analyzed: 11/21/24 12:03			
1 1,1,1-Trichloroethane	76		8.2	ug/m3	71.4		106	70-130		
2 1,1,2,2-Tetrachloroethane	70		0.82	ug/m3	89.2		79	70-130		
3 1,1,2-Trichloroethane	62		1.6	ug/m3	71.4		86	70-130		
4 1,1,2-Trichlorotrifluoroethane	100		23	ug/m3	103		97	70-130		
5 1,1-Dichloroethane	50		6.1	ug/m3	53.0		95	70-130		
6 1,1-Dichloroethene	50		5.9	ug/m3	53.1		93	70-133		
7 1,2,4-Trichlorobenzene	68		22	ug/m3	96.4		71	70-140		
8 1,2,4-Trimethylbenzene	57		7.4	ug/m3	64.4		89	70-132		
9 1,2-Dichlorobenzene	62		9.0	ug/m3	78.1		80	70-130		
10 1,2-Dichloroethane	58		1.2	ug/m3	53.0		110	70-130		
11 1,2-Dichloropropane	59		6.9	ug/m3	60.5		97	70-130		
12 1,3,5-Trimethylbenzene	55		7.4	ug/m3	63.4		87	70-131		
13 1,3-Butadiene	26		0.66	ug/m3	29.0		89	70-134		
14 1,3-Dichlorobenzene	64		9.0	ug/m3	78.7		81	70-131		
15 1,4-Dichlorobenzene	65		9.0	ug/m3	78.1		83	70-134		
16 1,4-Dioxane	41		5.4	ug/m3	46.5		89	70-130		
17 2,2,4-Trimethylpentane	59		28	ug/m3	60.2		98	70-130		
18 2-Butanone	34		8.8	ug/m3	38.6		88	70-130		
19 2-Hexanone	43		12	ug/m3	52.8		81	70-139		
20 4-Methyl-2-pentanone	50		12	ug/m3	53.6		94	70-130		
21 Acetone	25		36	ug/m3	30.3		82	70-130		
22 Benzene	38		4.8	ug/m3	42.3		91	70-130		
23 Benzyl Chloride	59		1.6	ug/m3	67.8		87	70-150		
24 Bromodichloromethane	87		2.0	ug/m3	86.4		101	70-130		
25 Bromoform	130		15	ug/m3	134		96	70-138		
26 Bromomethane	44		5.8	ug/m3	49.5		89	70-133		
27 Carbon Disulfide	33		19	ug/m3	41.2		81	70-130		
28 Carbon Tetrachloride	85		1.9	ug/m3	79.2		107	70-131		
29 Chlorobenzene	50		14	ug/m3	60.3		84	70-130		
30 Chloroethane	28		4.0	ug/m3	33.6		84	70-130		
31 Chloroform	63		1.5	ug/m3	63.9		98	70-130		
32 Chloromethane	22		12	ug/m3	26.6		84	70-130		
33 cis-1,2-Dichloroethene	53		5.9	ug/m3	53.1		100	70-130		
34 cis-1,3-Dichloropropene	61		6.8	ug/m3	59.4		102	70-131		
35 Cyclohexane	45		10	ug/m3	45.1		99	70-130		
36 Dibromochloromethane	100		1.0	ug/m3	109		92	70-135		
37 Dichlorodifluoromethane	58		15	ug/m3	61.8		94	70-132		
38 Ethanol	22		11	ug/m3	25.9		85	70-130		
39 Ethyl Acetate	46		11	ug/m3	46.8		99	70-130		
40 Ethylbenzene	53		13	ug/m3	56.4		94	70-130		
41 Ethylene Dibromide	87		0.23	ug/m3	97.9		88	70-130		
42 Hexachlorobutadiene	78	ICV-, L-	1.3	ug/m3	140		56	70-134		
43 Isopropanol	30		15	ug/m3	31.3		97	54-144		
44 m&p-Xylene	100		13	ug/m3	113		92	70-130		

The contents of this report apply to the sample(s) analyzed in accordance with the chain of custody document.
No duplication of this report is allowed, except in its entirety.

Arcadis U.S., Inc. - Novi	Project: RACER Lansing	
28550 Cabot Drive, Suite 500	Project Number: 30214036.00102	
Novi, MI 48377	Project Manager: Kaitlyn Hunt	Reported: 12/10/2024 10:56

Quality Control
(Continued)

Volatiles Analysis-GC/MS (TO-15) (Continued)

Analyte	Result/ Qual	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
LCS (BDK0419-BS1)				Prepared: 11/20/24 16:46 Analyzed: 11/21/24 12:03					
45 Methylene Chloride	33	42	ug/m3	44.8		73	70-132		
46 MTBE	49	5.4	ug/m3	47.2		104	70-130		
47 Naphthalene	44 L-	19	ug/m3	73.9		60	70-148		
48 n-Heptane	54	12	ug/m3	53.3		101	70-132		
49 n-Hexane	44	11	ug/m3	46.7		94	70-130		
50 n-Pentane	31	4.4	ug/m3	38.6		81	70-130		
51 n-Propylbenzene	58	7.4	ug/m3	63.9		91	70-130		
52 o-Xylene	53	13	ug/m3	56.4		93	70-130		
53 sec-Butylbenzene	62	4.9	ug/m3	72.7		85	70-130		
54 Styrene	51	13	ug/m3	55.8		92	70-130		
55 tert-Butylbenzene	64	4.9	ug/m3	71.9		89	70-130		
56 Tetrachloroethene	99	10	ug/m3	88.1		112	70-130		
57 Tetrahydrofuran	34	4.4	ug/m3	35.7		96	70-138		
58 Toluene	44	5.7	ug/m3	49.0		89	70-130		
59 trans-1,2-Dichloroethene	51	5.9	ug/m3	51.9		98	70-130		
60 trans-1,3-Dichloropropene	53	6.8	ug/m3	54.0		98	70-134		
61 Trichloroethene	68	0.40	ug/m3	69.3		98	70-130		
62 Trichlorofluoromethane	79	8.4	ug/m3	72.4		109	70-132		
63 Vinyl Acetate	43	11	ug/m3	47.5		91	70-131		
64 Vinyl Chloride	29	3.8	ug/m3	32.6		88	70-131		
Surrogate: 4-Bromofluorobenzene(S)	*42*		*ug/m3*	*42.0*		*100*	*80-120*		

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Arcadis U.S., Inc. - Novi	Project: RACER Lansing	
28550 Cabot Drive, Suite 500	Project Number: 30214036.00102	
Novi, MI 48377	Project Manager: Kaitlyn Hunt	Reported: 12/10/2024 10:56

Quality Control
(Continued)

Volatiles Analysis-GC/MS (TO-15) (Continued)

Analyte	Result/	Qual	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
LCS Dup (BDK0419-BSD1)					Prepared: 11/20/24 16:46		Analyzed: 11/21/24 12:57			
1 1,1,1-Trichloroethane	77		8.2	ug/m3	71.4		107	70-130	0.9	20
2 1,1,2,2-Tetrachloroethane	70		0.82	ug/m3	89.2		79	70-130	0.2	20
3 1,1,2-Trichloroethane	62		1.6	ug/m3	71.4		86	70-130	0.09	20
4 1,1,2-Trichlorotrifluoroethane	100		23	ug/m3	103		97	70-130	0.2	20
5 1,1-Dichloroethane	50		6.1	ug/m3	53.0		95	70-130	0.4	20
6 1,1-Dichloroethene	56		5.9	ug/m3	53.1		105	70-133	11	20
7 1,2,4-Trichlorobenzene	69		22	ug/m3	96.4		72	70-140	2	20
8 1,2,4-Trimethylbenzene	57		7.4	ug/m3	64.4		89	70-132	0.09	20
9 1,2-Dichlorobenzene	63		9.0	ug/m3	78.1		80	70-130	0.8	20
10 1,2-Dichloroethane	59		1.2	ug/m3	53.0		111	70-130	0.6	20
11 1,2-Dichloropropane	60		6.9	ug/m3	60.5		99	70-130	3	20
12 1,3,5-Trimethylbenzene	56		7.4	ug/m3	63.4		89	70-131	1	20
13 1,3-Butadiene	25		0.66	ug/m3	29.0		88	70-134	1	20
14 1,3-Dichlorobenzene	64		9.0	ug/m3	78.7		82	70-131	0.3	20
15 1,4-Dichlorobenzene	66		9.0	ug/m3	78.1		84	70-134	1	20
16 1,4-Dioxane	41		5.4	ug/m3	46.5		89	70-130	0.7	20
17 2,2,4-Trimethylpentane	60		28	ug/m3	60.2		99	70-130	1	20
18 2-Butanone	34		8.8	ug/m3	38.6		89	70-130	0.8	20
19 2-Hexanone	44		12	ug/m3	52.8		83	70-139	3	20
20 4-Methyl-2-pentanone	51		12	ug/m3	53.6		95	70-130	1	20
21 Acetone	26		36	ug/m3	30.3		84	70-130	3	20
22 Benzene	39		4.8	ug/m3	42.3		92	70-130	1	20
23 Benzyl Chloride	60		1.6	ug/m3	67.8		89	70-150	2	20
24 Bromodichloromethane	88		2.0	ug/m3	86.4		102	70-130	0.7	20
25 Bromoform	130		15	ug/m3	134		97	70-138	0.9	20
26 Bromomethane	45		5.8	ug/m3	49.5		91	70-133	2	20
27 Carbon Disulfide	34		19	ug/m3	41.2		82	70-130	0.6	20
28 Carbon Tetrachloride	86		1.9	ug/m3	79.2		108	70-131	0.7	20
29 Chlorobenzene	51		14	ug/m3	60.3		84	70-130	0.2	20
30 Chloroethane	30		4.0	ug/m3	33.6		89	70-130	5	20
31 Chloroform	64		1.5	ug/m3	63.9		100	70-130	1	20
32 Chloromethane	23		12	ug/m3	26.6		85	70-130	1	20
33 cis-1,2-Dichloroethene	53		5.9	ug/m3	53.1		99	70-130	0.5	20
34 cis-1,3-Dichloropropene	62		6.8	ug/m3	59.4		104	70-131	1	20
35 Cyclohexane	45		10	ug/m3	45.1		100	70-130	2	20
36 Dibromochloromethane	100		1.0	ug/m3	109		95	70-135	3	20
37 Dichlorodifluoromethane	58		15	ug/m3	61.8		94	70-132	0.09	20
38 Ethanol	23		11	ug/m3	25.9		91	70-130	7	20
39 Ethyl Acetate	46		11	ug/m3	46.8		98	70-130	0.8	20
40 Ethylbenzene	53		13	ug/m3	56.4		94	70-130	0.08	20
41 Ethylene Dibromide	88		0.23	ug/m3	97.9		89	70-130	1	20
42 Hexachlorobutadiene	80	ICV-, L-	1.3	ug/m3	140		57	70-134	3	20
43 Isopropanol	32		15	ug/m3	31.3		101	54-144	4	20
44 m&p-Xylene	100		13	ug/m3	113		91	70-130	0.9	20

The contents of this report apply to the sample(s) analyzed in accordance with the chain of custody document.
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Arcadis U.S., Inc. - Novi	Project: RACER Lansing	
28550 Cabot Drive, Suite 500	Project Number: 30214036.00102	
Novi, MI 48377	Project Manager: Kaitlyn Hunt	Reported: 12/10/2024 10:56

Quality Control
(Continued)

Volatiles Analysis-GC/MS (TO-15) (Continued)

Analyte	Result/ Qual	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
LCS Dup (BDK0419-BSD1)				Prepared: 11/20/24 16:46		Analyzed: 11/21/24 12:57			
45 Methylene Chloride	37	42	ug/m3	44.8		83	70-132	14	20
46 MTBE	50	5.4	ug/m3	47.2		105	70-130	0.8	20
47 Naphthalene	45 L-	19	ug/m3	73.9		60	70-148	2	20
48 n-Heptane	54	12	ug/m3	53.3		101	70-132	0.8	20
49 n-Hexane	44	11	ug/m3	46.7		95	70-130	0.6	20
50 n-Pentane	31	4.4	ug/m3	38.6		80	70-130	0.2	20
51 n-Propylbenzene	58	7.4	ug/m3	63.9		91	70-130	0.3	20
52 o-Xylene	53	13	ug/m3	56.4		94	70-130	0.2	20
53 sec-Butylbenzene	63	4.9	ug/m3	72.7		86	70-130	1	20
54 Styrene	52	13	ug/m3	55.8		93	70-130	0.7	20
55 tert-Butylbenzene	64	4.9	ug/m3	71.9		89	70-130	0.3	20
56 Tetrachloroethene	100	10	ug/m3	88.1		113	70-130	1	20
57 Tetrahydrofuran	34	4.4	ug/m3	35.7		96	70-138	0.5	20
58 Toluene	44	5.7	ug/m3	49.0		89	70-130	0.4	20
59 trans-1,2-Dichloroethene	52	5.9	ug/m3	51.9		99	70-130	1	20
60 trans-1,3-Dichloropropene	54	6.8	ug/m3	54.0		99	70-134	2	20
61 Trichloroethene	69	0.40	ug/m3	69.3		99	70-130	1	20
62 Trichlorofluoromethane	81	8.4	ug/m3	72.4		111	70-132	3	20
63 Vinyl Acetate	43	11	ug/m3	47.5		90	70-131	0.4	20
64 Vinyl Chloride	30	3.8	ug/m3	32.6		91	70-131	3	20
Surrogate: 4-Bromofluorobenzene(S)	*41*		*ug/m3*	*42.0*		*98*	*80-120*		

The contents of this report apply to the sample(s) analyzed in accordance with the chain of custody document.
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Arcadis U.S., Inc. - Novi	Project: RACER Lansing	
28550 Cabot Drive, Suite 500	Project Number: 30214036.00102	
Novi, MI 48377	Project Manager: Kaitlyn Hunt	Reported: 12/10/2024 10:56

Notes and Definitions

Item	Definition
ICV-	Recovery in the associated initial calibration verification sample exceeds the lower control limit. Results may be biased low.
L-	Recovery in the associated laboratory sample (LCS) exceeds the lower control limit. Results may be biased low.
Dry	Sample results reported on a dry weight basis.
MDL	Method Detection Limit (only displays if reported to the MDL)
ND	Analyte NOT DETECTED at or above the reporting limit.
DF	Dilution Factor
DL	Detection Limit
‡	Parameter not included in NELAC Scope of Analysis.
RPD	Relative Percent Difference
%REC	Percent Recovery
Source	Sample that was matrix spiked or duplicated.

PQL, Practical Quantitation Limit = Method Reporting Limit (MRL).

Accreditation Number(s):
MI001292024-1

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Arcadis U.S., Inc. - Novi	Project: RACER Lansing	
28550 Cabot Drive, Suite 500	Project Number: 30214036.00102	
Novi, MI 48377	Project Manager: Kaitlyn Hunt	Reported: 12/10/2024 10:56

WORK ORDER

24K0273

Printed: 12/10/2024 10:57 am

Project: **RACER Lansing**
Project Number: **30214036.00102**
Project Manager: **Jacob Sutherlund**
PO Number:

Report To:

Arcadis U.S., Inc. - Novi
Kaitlyn Hunt
28550 Cabot Drive, Suite 500
Novi, MI 48377
Phone: 2489942240
Fax: 2489942241

Invoice To:

Arcadis U.S., Inc. - Novi
Kaitlyn Hunt
28550 Cabot Drive, Suite 500
Novi, MI 48377
Phone: 2489942240
Fax: 2489942241

Date Received: 11/20/2024 12:35 PM
Date Due: 11/27/2024 (5.00 day TAT)

Logged In By: Tristen Rhines
Received By: Kelly Williams

Analysis		Comments
24K0273-01 SVMP-20-01_112024 [Air] Sampled 11/20/2024 11:10:00AM		
TO-15-MI	Soil Gas/Subslab (65 Compound	Select List (65 Compounds)
24K0273-02 Dup-01_112024 [Air] Sampled 11/20/2024 12:00:00AM		
TO-15-MI	Soil Gas/Subslab (65 Compound	Select List (65 Compounds)

24K0273 **Sample Receipt Log**

Default Cooler

Samples Received at: **20.0°C**

Were Custody Seals present and signed?	No	Container/preservative correct for test requested?	Yes
Received on Ice	No	Sufficient amount sent for tests requested?	Yes
Within proper temp	No	Required containers sealed in separate bags?	No
Were all TO-15 samples received at ambient?	Yes	Were all samples inspected and sampled correctly?	Yes
Was a chain of custody received?	Yes	Were bubbles absent in volatile samples?	No
COCs complete/signed in the appropriate places?	Yes	Sufficient remaining holding time for analyses?	Yes
Were all samples listed on COC received?	Yes	If Applicable pH documented for necessary samples?	No
Did all samples/container labels agree with COCs?	Yes	If applicable, was the chlorine test negative?	No
Did all containers arrive in good condition?	Yes	If applicable, samples free of oxidizers?	No
Containers Intact	Yes	Thermometer # : 10003954 used?	No

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Fibertec environmental services

Analytical Laboratory

1914 Holloway Drive
Holt, MI 48842
Phone: 517 699 0345
Fax: 517 699 0388
email: lab@fibertec.us

8660 S. Mackinaw Trail
Cadillac, MI 49601
Phone: 231 775 8368
Fax: 231 775 8584

Geoprobe

11766 E. Grand River Rd.
Brighton, MI 48116
Phone: 810 220 3300
Fax: 810 220 3311

Chain of Custody # 222746

PAGE 1 of 1

Client Name: Arcadis

Contact Person: Kaitlin.Hunt@arcadis.com

Project Name/ Number: RACER Lansing / 30214036.00102

Email distribution list: Kaitlin.Hunt@arcadis.com; Tiffany.Linder@arcadis.com

Quote#

Purchase Order#

Date	Time	Sample #	Client Sample Descriptor	MATRIX (SEE RIGHT CORNER FOR CODE)	# OF CONTAINERS	PARAMETERS: TO-15	PARAMETERS	PARAMETERS	PARAMETERS	PARAMETERS	PARAMETERS	PARAMETERS	PARAMETERS	PARAMETERS	PARAMETERS	HOLD SAMPLE
11/20/24	1110	1	SVMP-20-01_112024	A	1	X										
11/20/24	—	2	DUP-01_112024	A	1	X										

Matrix Code

S	Soil	GW	Ground Water
A	Air	SW	Surface Water
O	Oil	WW	Waste Water
P	Wipe	X	Other: Specify

Deliverables

- Level 2
- Level 3
- Level 4
- EDD

Remarks:

Received By Lab
NOV 20 2024
Initials: VW

Comments:

Sampled/Relinquished By: Ann LaWall / Austin Westhuis / Arcadis	Date/ Time 11/20/24 1235	Received By:
Relinquished By:	Date/ Time	Received By:
Relinquished By:	Date/ Time	Received By Laboratory:

Turnaround Time ALL RESULTS WILL BE SENT BY THE END OF THE BUSINESS DAY

_____1 bus. day _____2 bus. days _____3 bus. days _____4 bus. days

X 5-7 bus. days (standard) Other (specify time/date requirement): _____

LAB USE ONLY

Fibertec project number: 24K0273

Temperature upon receipt at Lab: Ambient

Please see back for terms and conditions

Appendix B-3

Storm Sewer Sampling Laboratory Analytical Results

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

October 30, 2024

Tiffany Linder
Arcadis U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, MI 48377

RE: Project: 30214036.0370B RACER Lansing
Pace Project No.: 10710540

Dear Tiffany Linder:

Enclosed are the analytical results for sample(s) received by the laboratory on October 04, 2024. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Minneapolis

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Bryan Nguyen

Bryan Nguyen
bryan.nguyen@pacelabs.com
612-656-2286
Project Manager

Enclosures

cc: Anyssa Mandich, Arcadis U.S., Inc.
Marina Samp, Arcadis U.S., Inc.

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

CERTIFICATIONS

Project: 30214036.0370B RACER Lansing
Pace Project No.: 10710540

Pace Analytical Services, LLC - Minneapolis MN
1700 Elm Street SE, Minneapolis, MN 55414
Alabama Certification #: 40770
Alaska Contaminated Sites Certification #: 17-009
Alaska DW Certification #: MN00064
Arizona Certification #: AZ0014
Arkansas DW Certification #: MN00064
Arkansas WW Certification #: 88-0680
California Certification #: 2929
Colorado Certification #: MN00064
Connecticut Certification #: PH-0256
DoD Certification via A2LA #: 2926.01
EPA Region 8 Tribal Water Systems+Wyoming DW Certification #: via MN 027-053-137
Florida Certification #: E87605
Georgia Certification #: 959
GMP+ Certification #: GMP050884
Hawaii Certification #: MN00064
Idaho Certification #: MN00064
Illinois Certification #: 200011
Indiana Certification #: C-MN-01
Iowa Certification #: 368
ISO/IEC 17025 Certification via A2LA #: 2926.01
Kansas Certification #: E-10167
Kentucky DW Certification #: 90062
Kentucky WW Certification #: 90062
Louisiana DEQ Certification #: AI-03086
Louisiana DW Certification #: MN00064
Maine Certification #: MN00064
Maryland Certification #: 322
Michigan Certification #: 9909
Minnesota Certification #: 027-053-137
Minnesota Dept of Ag Approval: via MN 027-053-137
Minnesota Petrofund Registration #: 1240
Mississippi Certification #: MN00064
Missouri Certification #: 10100
Montana Certification #: CERT0092
Nebraska Certification #: NE-OS-18-06
Nevada Certification #: MN00064
New Hampshire Certification #: 2081
New Jersey Certification #: MN002
New York Certification #: 11647
North Carolina DW Certification #: 27700
North Carolina WW Certification #: 530
North Dakota Certification (A2LA) #: R-036
North Dakota Certification (MN) #: R-036
Ohio DW Certification #: 41244
Ohio VAP Certification (1700) #: CL101
Oklahoma Certification #: 9507
Oregon Primary Certification #: MN300001
Oregon Secondary Certification #: MN200001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification #: MN00064
South Carolina Certification #:74003001
Tennessee Certification #: TN02818
Texas Certification #: T104704192
Utah Certification #: MN00064
Vermont Certification #: VT-027053137
Virginia Certification #: 460163
Washington Certification #: C486
West Virginia DEP Certification #: 382
West Virginia DW Certification #: 9952 C
Wisconsin Certification #: 999407970
Wyoming UST Certification via A2LA #: 2926.01
USDA Permit #: P330-19-00208

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Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

SAMPLE SUMMARY

Project: 30214036.0370B RACER Lansing
Pace Project No.: 10710540

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10710540001	**MichAve-MH-3_100324**	Water	10/03/24 09:30	10/04/24 08:50
10710540002	**Verlinden-MH-5_100324**	Water	10/03/24 09:50	10/04/24 08:50
10710540003	**Osborn-MH-1_100324**	Water	10/03/24 10:20	10/04/24 08:50
10710540004	**P3-MH-284_100324**	Water	10/03/24 13:32	10/04/24 08:50
10710540005	**P2-MH-W_100324**	Water	10/03/24 14:15	10/04/24 08:50
10710540006	**P2-MH-2_100324**	Water	10/03/24 14:50	10/04/24 08:50
10710540007	**DUP-01_100324**	Water	10/03/24 00:00	10/04/24 08:50
10710540008	**FB-01_100324**	Water	10/03/24 15:30	10/04/24 08:50
10710540009	**EB-01_100324**	Water	10/03/24 15:35	10/04/24 08:50

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SAMPLE ANALYTE COUNT

Project: 30214036.0370B RACER Lansing
Pace Project No.: 10710540

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10710540001	**MichAve-MH-3_100324**	ENV-SOP-MIN4-0178	MJL	53	PASI-M
10710540002	**Verlinden-MH-5_100324**	ENV-SOP-MIN4-0178	MJL	53	PASI-M
10710540003	**Osborn-MH-1_100324**	ENV-SOP-MIN4-0178	MJL	53	PASI-M
10710540004	**P3-MH-284_100324**	ENV-SOP-MIN4-0178	MJL	53	PASI-M
10710540005	**P2-MH-W_100324**	ENV-SOP-MIN4-0178	MJL	53	PASI-M
10710540006	**P2-MH-2_100324**	ENV-SOP-MIN4-0178	MJL	53	PASI-M
10710540007	**DUP-01_100324**	ENV-SOP-MIN4-0178	MJL	53	PASI-M
10710540008	**FB-01_100324**	ENV-SOP-MIN4-0178	MJL	53	PASI-M
10710540009	**EB-01_100324**	ENV-SOP-MIN4-0178	MJL	53	PASI-M

PASI-M = Pace Analytical Services - Minneapolis

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ANALYTICAL RESULTS

Project: 30214036.0370B RACER Lansing
Pace Project No.: 10710540

Sample: MichAve-MH-3_100324 **Lab ID: 10710540001** Collected: 10/03/24 09:30 Received: 10/04/24 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
PFAS ID NPW	Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178 Pace Analytical Services - Minneapolis							
11Cl-PF3OUdS	ND	ng/L	1.9	1	10/23/24 14:27	10/24/24 14:05	763051-92-9	
4:2 FTS	ND	ng/L	1.9	1	10/23/24 14:27	10/24/24 14:05	757124-72-4	
6:2 FTS	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 14:05	27619-97-2	
8:2 FTS	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 14:05	39108-34-4	
9Cl-PF3ONS	ND	ng/L	1.9	1	10/23/24 14:27	10/24/24 14:05	756426-58-1	
ADONA	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 14:05	919005-14-4	
HFPO-DA	ND	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:05	13252-13-6	
NEtFOSAA	ND	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:05	2991-50-6	
NMeFOSAA	ND	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:05	2355-31-9	
PFBS	**3.1**	ng/L	1.8	1	10/23/24 14:27	10/24/24 14:05	375-73-5	
PFDA	ND	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:05	335-76-2	
PFHxA	**12.1**	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:05	307-24-4	
PFBA	**12.8**	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:05	375-22-4	M1
PFDS	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 14:05	335-77-3	
PFHpS	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 14:05	375-92-8	
PFNS	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 14:05	68259-12-1	R1
PFOSA	ND	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:05	754-91-6	
PFPeA	**10.8**	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:05	2706-90-3	
PFPeS	ND	ng/L	1.9	1	10/23/24 14:27	10/24/24 14:05	2706-91-4	
PFDoA	ND	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:05	307-55-1	
PFHpA	**4.1**	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:05	375-85-9	
PFHxS	**5.0**	ng/L	1.9	1	10/23/24 14:27	10/24/24 14:05	355-46-4	
PFNA	ND	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:05	375-95-1	
PFOS	**4.7**	ng/L	1.9	1	10/23/24 14:27	10/24/24 14:05	1763-23-1	
PFOA	**8.0**	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:05	335-67-1	
PFTeDA	ND	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:05	376-06-7	
PFTrDA	ND	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:05	72629-94-8	
PFUnA	ND	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:05	2058-94-8	
Surrogates								
13C26:2FTS (S)	206	%.	50-150	1	10/23/24 14:27	10/24/24 14:05		S0
13C28:2FTS (S)	224	%.	50-150	1	10/23/24 14:27	10/24/24 14:05		S0
13C24:2FTS (S)	148	%.	50-150	1	10/23/24 14:27	10/24/24 14:05		
13C2-PFDoA (S)	92	%.	50-150	1	10/23/24 14:27	10/24/24 14:05		
13C2PFHxDA (S)	30	%.	50-150	1	10/23/24 14:27	10/24/24 14:05		S0
13C2-PFTA (S)	75	%.	50-150	1	10/23/24 14:27	10/24/24 14:05		
13C3HFPO-DA (S)	55	%.	50-150	1	10/23/24 14:27	10/24/24 14:05		
13C3-PFBS (S)	71	%.	50-150	1	10/23/24 14:27	10/24/24 14:05		
13C3-PFHxS (S)	86	%.	50-150	1	10/23/24 14:27	10/24/24 14:05		
13C4-PFBA (S)	44	%.	50-150	1	10/23/24 14:27	10/24/24 14:05		S0
13C4-PFHpA (S)	85	%.	50-150	1	10/23/24 14:27	10/24/24 14:05		
13C5-PFHxA (S)	85	%.	50-150	1	10/23/24 14:27	10/24/24 14:05		
13C5-PFPeA (S)	51	%.	50-150	1	10/23/24 14:27	10/24/24 14:05		
13C6-PFDA (S)	101	%.	50-150	1	10/23/24 14:27	10/24/24 14:05		
13C7-PFUdA (S)	100	%.	50-150	1	10/23/24 14:27	10/24/24 14:05		
13C8-PFOA (S)	87	%.	50-150	1	10/23/24 14:27	10/24/24 14:05		
13C8-PFOS (S)	91	%.	50-150	1	10/23/24 14:27	10/24/24 14:05		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 30214036.0370B RACER Lansing
Pace Project No.: 10710540

Sample: MichAve-MH-3_100324 **Lab ID: 10710540001** Collected: 10/03/24 09:30 Received: 10/04/24 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
PFAS ID NPW	Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178 Pace Analytical Services - Minneapolis							
Surrogates								
13C8-PFOSA (S)	46	%.	50-150	1	10/23/24 14:27	10/24/24 14:05		S0
13C9-PFNA (S)	87	%.	50-150	1	10/23/24 14:27	10/24/24 14:05		
d3-MeFOSAA (S)	105	%.	50-150	1	10/23/24 14:27	10/24/24 14:05		
d3-NMeFOSA (S)	3	%.	10-150	1	10/23/24 14:27	10/24/24 14:05		S0
d5-EtFOSAA (S)	111	%.	50-150	1	10/23/24 14:27	10/24/24 14:05		
d5-NEtFOSA (S)	3	%.	10-150	1	10/23/24 14:27	10/24/24 14:05		S0
d7-NMeFOSE (S)	12	%.	10-150	1	10/23/24 14:27	10/24/24 14:05		
d9-NEtFOSE (S)	11	%.	10-150	1	10/23/24 14:27	10/24/24 14:05		

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ANALYTICAL RESULTS

Project: 30214036.0370B RACER Lansing
Pace Project No.: 10710540

Sample: Verlinden-MH-5_100324 **Lab ID: 10710540002** Collected: 10/03/24 09:50 Received: 10/04/24 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
PFAS ID NPW	Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178							
	Pace Analytical Services - Minneapolis							
11Cl-PF3OUdS	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 14:27	763051-92-9	
4:2 FTS	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 14:27	757124-72-4	
6:2 FTS	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 14:27	27619-97-2	
8:2 FTS	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 14:27	39108-34-4	
9Cl-PF3ONS	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 14:27	756426-58-1	
ADONA	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 14:27	919005-14-4	
HFPO-DA	ND	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:27	13252-13-6	
NEtFOSAA	ND	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:27	2991-50-6	
NMeFOSAA	ND	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:27	2355-31-9	
PFBS	**4.3**	ng/L	1.9	1	10/23/24 14:27	10/24/24 14:27	375-73-5	
PFDA	ND	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:27	335-76-2	
PFHxA	**31.5**	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:27	307-24-4	
PFBA	**16.4**	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:27	375-22-4	
PFDS	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 14:27	335-77-3	
PFHpS	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 14:27	375-92-8	
PFNS	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 14:27	68259-12-1	
PFOSA	ND	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:27	754-91-6	
PFPeA	**33.0**	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:27	2706-90-3	
PFPeS	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 14:27	2706-91-4	
PFDoA	ND	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:27	307-55-1	
PFHpA	**21.4**	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:27	375-85-9	
PFHxS	**2.2**	ng/L	1.9	1	10/23/24 14:27	10/24/24 14:27	355-46-4	
PFNA	**3.6**	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:27	375-95-1	
PFOS	**11.6**	ng/L	1.9	1	10/23/24 14:27	10/24/24 14:27	1763-23-1	
PFOA	**39.9**	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:27	335-67-1	
PFTeDA	ND	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:27	376-06-7	
PFTrDA	ND	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:27	72629-94-8	
PFUnA	ND	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:27	2058-94-8	
Surrogates								
13C26:2FTS (S)	176	%.	50-150	1	10/23/24 14:27	10/24/24 14:27		S0
13C28:2FTS (S)	240	%.	50-150	1	10/23/24 14:27	10/24/24 14:27		S0
13C24:2FTS (S)	151	%.	50-150	1	10/23/24 14:27	10/24/24 14:27		S0
13C2-PFDoA (S)	88	%.	50-150	1	10/23/24 14:27	10/24/24 14:27		
13C2PFHxDA (S)	39	%.	50-150	1	10/23/24 14:27	10/24/24 14:27		S0
13C2-PFTA (S)	81	%.	50-150	1	10/23/24 14:27	10/24/24 14:27		
13C3HFPO-DA (S)	60	%.	50-150	1	10/23/24 14:27	10/24/24 14:27		
13C3-PFBS (S)	80	%.	50-150	1	10/23/24 14:27	10/24/24 14:27		
13C3-PFHxS (S)	96	%.	50-150	1	10/23/24 14:27	10/24/24 14:27		
13C4-PFBA (S)	57	%.	50-150	1	10/23/24 14:27	10/24/24 14:27		
13C4-PFHpA (S)	94	%.	50-150	1	10/23/24 14:27	10/24/24 14:27		
13C5-PFHxA (S)	94	%.	50-150	1	10/23/24 14:27	10/24/24 14:27		
13C5-PFPeA (S)	62	%.	50-150	1	10/23/24 14:27	10/24/24 14:27		
13C6-PFDA (S)	109	%.	50-150	1	10/23/24 14:27	10/24/24 14:27		
13C7-PFUdA (S)	102	%.	50-150	1	10/23/24 14:27	10/24/24 14:27		
13C8-PFOA (S)	94	%.	50-150	1	10/23/24 14:27	10/24/24 14:27		
13C8-PFOS (S)	96	%.	50-150	1	10/23/24 14:27	10/24/24 14:27		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 30214036.0370B RACER Lansing
Pace Project No.: 10710540

Sample: Verlinden-MH-5_100324 **Lab ID: 10710540002** Collected: 10/03/24 09:50 Received: 10/04/24 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
PFAS ID NPW	Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178 Pace Analytical Services - Minneapolis							
Surrogates								
13C8-PFOSA (S)	51	%.	50-150	1	10/23/24 14:27	10/24/24 14:27		
13C9-PFNA (S)	99	%.	50-150	1	10/23/24 14:27	10/24/24 14:27		
d3-MeFOSAA (S)	99	%.	50-150	1	10/23/24 14:27	10/24/24 14:27		
d3-NMeFOSA (S)	2	%.	10-150	1	10/23/24 14:27	10/24/24 14:27		S0
d5-EtFOSAA (S)	101	%.	50-150	1	10/23/24 14:27	10/24/24 14:27		
d5-NEtFOSA (S)	1	%.	10-150	1	10/23/24 14:27	10/24/24 14:27		S0
d7-NMeFOSE (S)	9	%.	10-150	1	10/23/24 14:27	10/24/24 14:27		S0
d9-NEtFOSE (S)	6	%.	10-150	1	10/23/24 14:27	10/24/24 14:27		S0

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ANALYTICAL RESULTS

Project: 30214036.0370B RACER Lansing
Pace Project No.: 10710540

Sample: Osborn-MH-1_100324 **Lab ID: 10710540003** Collected: 10/03/24 10:20 Received: 10/04/24 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
PFAS ID NPW	Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178 Pace Analytical Services - Minneapolis							
11Cl-PF3OUdS	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 14:34	763051-92-9	
4:2 FTS	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 14:34	757124-72-4	
6:2 FTS	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 14:34	27619-97-2	
8:2 FTS	ND	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:34	39108-34-4	
9Cl-PF3ONS	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 14:34	756426-58-1	
ADONA	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 14:34	919005-14-4	
HFPO-DA	ND	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:34	13252-13-6	
NEtFOSAA	ND	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:34	2991-50-6	
NMeFOSAA	ND	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:34	2355-31-9	
PFBS	ND	ng/L	1.9	1	10/23/24 14:27	10/24/24 14:34	375-73-5	
PFDA	ND	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:34	335-76-2	
PFHxA	**13.6**	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:34	307-24-4	
PFBA	**13.1**	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:34	375-22-4	
PFDS	ND	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:34	335-77-3	
PFHpS	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 14:34	375-92-8	
PFNS	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 14:34	68259-12-1	
PFOSA	ND	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:34	754-91-6	
PFPeA	**16.2**	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:34	2706-90-3	
PFPeS	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 14:34	2706-91-4	
PFDoA	ND	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:34	307-55-1	
PFHpA	**10.6**	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:34	375-85-9	
PFHxS	ND	ng/L	1.9	1	10/23/24 14:27	10/24/24 14:34	355-46-4	
PFNA	**2.7**	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:34	375-95-1	
PFOS	**12.6**	ng/L	2.0	1	10/23/24 14:27	10/24/24 14:34	1763-23-1	
PFOA	**23.2**	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:34	335-67-1	
PFTeDA	ND	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:34	376-06-7	
PFTrDA	ND	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:34	72629-94-8	
PFUnA	ND	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:34	2058-94-8	
Surrogates								
13C26:2FTS (S)	198	%.	50-150	1	10/23/24 14:27	10/24/24 14:34		S0
13C28:2FTS (S)	288	%.	50-150	1	10/23/24 14:27	10/24/24 14:34		S0
13C24:2FTS (S)	140	%.	50-150	1	10/23/24 14:27	10/24/24 14:34		
13C2-PFDoA (S)	92	%.	50-150	1	10/23/24 14:27	10/24/24 14:34		
13C2PFHxDA (S)	59	%.	50-150	1	10/23/24 14:27	10/24/24 14:34		
13C2-PFTA (S)	91	%.	50-150	1	10/23/24 14:27	10/24/24 14:34		
13C3HFPO-DA (S)	59	%.	50-150	1	10/23/24 14:27	10/24/24 14:34		
13C3-PFBS (S)	78	%.	50-150	1	10/23/24 14:27	10/24/24 14:34		
13C3-PFHxS (S)	88	%.	50-150	1	10/23/24 14:27	10/24/24 14:34		
13C4-PFBA (S)	58	%.	50-150	1	10/23/24 14:27	10/24/24 14:34		
13C4-PFHpA (S)	91	%.	50-150	1	10/23/24 14:27	10/24/24 14:34		
13C5-PFHxA (S)	92	%.	50-150	1	10/23/24 14:27	10/24/24 14:34		
13C5-PFPeA (S)	60	%.	50-150	1	10/23/24 14:27	10/24/24 14:34		
13C6-PFDA (S)	104	%.	50-150	1	10/23/24 14:27	10/24/24 14:34		
13C7-PFUdA (S)	101	%.	50-150	1	10/23/24 14:27	10/24/24 14:34		
13C8-PFOA (S)	92	%.	50-150	1	10/23/24 14:27	10/24/24 14:34		
13C8-PFOS (S)	90	%.	50-150	1	10/23/24 14:27	10/24/24 14:34		

REPORT OF LABORATORY ANALYSIS

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(612)607-1700

ANALYTICAL RESULTS

Project: 30214036.0370B RACER Lansing
Pace Project No.: 10710540

Sample: Osborn-MH-1_100324 **Lab ID: 10710540003** Collected: 10/03/24 10:20 Received: 10/04/24 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
PFAS ID NPW	Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178 Pace Analytical Services - Minneapolis							
Surrogates								
13C8-PFOSA (S)	36	%.	50-150	1	10/23/24 14:27	10/24/24 14:34		S0
13C9-PFNA (S)	94	%.	50-150	1	10/23/24 14:27	10/24/24 14:34		
d3-MeFOSAA (S)	102	%.	50-150	1	10/23/24 14:27	10/24/24 14:34		
d3-NMeFOSA (S)	0	%.	10-150	1	10/23/24 14:27	10/24/24 14:34		S0
d5-EtFOSAA (S)	110	%.	50-150	1	10/23/24 14:27	10/24/24 14:34		
d5-NEtFOSA (S)	0	%.	10-150	1	10/23/24 14:27	10/24/24 14:34		S0
d7-NMeFOSE (S)	4	%.	10-150	1	10/23/24 14:27	10/24/24 14:34		S0
d9-NEtFOSE (S)	2	%.	10-150	1	10/23/24 14:27	10/24/24 14:34		S0

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ANALYTICAL RESULTS

Project: 30214036.0370B RACER Lansing
Pace Project No.: 10710540

Sample: P3-MH-284_100324 **Lab ID: 10710540004** Collected: 10/03/24 13:32 Received: 10/04/24 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
PFAS ID NPW	Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178							
	Pace Analytical Services - Minneapolis							
11Cl-PF3OUdS	ND	ng/L	3.6	1	10/23/24 14:27	10/24/24 14:41	763051-92-9	
4:2 FTS	ND	ng/L	3.6	1	10/23/24 14:27	10/24/24 14:41	757124-72-4	
6:2 FTS	ND	ng/L	3.7	1	10/23/24 14:27	10/24/24 14:41	27619-97-2	
8:2 FTS	ND	ng/L	3.7	1	10/23/24 14:27	10/24/24 14:41	39108-34-4	
9Cl-PF3ONS	ND	ng/L	3.6	1	10/23/24 14:27	10/24/24 14:41	756426-58-1	
ADONA	ND	ng/L	3.7	1	10/23/24 14:27	10/24/24 14:41	919005-14-4	
HFPO-DA	ND	ng/L	3.9	1	10/23/24 14:27	10/24/24 14:41	13252-13-6	
NEtFOSAA	ND	ng/L	3.9	1	10/23/24 14:27	10/24/24 14:41	2991-50-6	
NMeFOSAA	ND	ng/L	3.9	1	10/23/24 14:27	10/24/24 14:41	2355-31-9	
PFBS	ND	ng/L	3.4	1	10/23/24 14:27	10/24/24 14:41	375-73-5	
PFDA	ND	ng/L	3.9	1	10/23/24 14:27	10/24/24 14:41	335-76-2	
PFHxA	ND	ng/L	3.9	1	10/23/24 14:27	10/24/24 14:41	307-24-4	
PFBA	ND	ng/L	3.9	1	10/23/24 14:27	10/24/24 14:41	375-22-4	
PFDS	ND	ng/L	3.7	1	10/23/24 14:27	10/24/24 14:41	335-77-3	
PFHpS	ND	ng/L	3.7	1	10/23/24 14:27	10/24/24 14:41	375-92-8	
PFNS	ND	ng/L	3.7	1	10/23/24 14:27	10/24/24 14:41	68259-12-1	
PFOSA	ND	ng/L	3.9	1	10/23/24 14:27	10/24/24 14:41	754-91-6	
PFPeA	ND	ng/L	3.9	1	10/23/24 14:27	10/24/24 14:41	2706-90-3	
PFPeS	ND	ng/L	3.6	1	10/23/24 14:27	10/24/24 14:41	2706-91-4	
PFDoA	ND	ng/L	3.9	1	10/23/24 14:27	10/24/24 14:41	307-55-1	
PFHpA	ND	ng/L	3.9	1	10/23/24 14:27	10/24/24 14:41	375-85-9	
PFHxS	ND	ng/L	3.5	1	10/23/24 14:27	10/24/24 14:41	355-46-4	
PFNA	ND	ng/L	3.9	1	10/23/24 14:27	10/24/24 14:41	375-95-1	
PFOS	**26.4**	ng/L	3.6	1	10/23/24 14:27	10/24/24 14:41	1763-23-1	
PFOA	ND	ng/L	3.9	1	10/23/24 14:27	10/24/24 14:41	335-67-1	
PFTeDA	ND	ng/L	3.9	1	10/23/24 14:27	10/24/24 14:41	376-06-7	
PFTrDA	ND	ng/L	3.9	1	10/23/24 14:27	10/24/24 14:41	72629-94-8	
PFUnA	ND	ng/L	3.9	1	10/23/24 14:27	10/24/24 14:41	2058-94-8	
Surrogates								
13C26:2FTS (S)	204	%.	50-150	1	10/23/24 14:27	10/24/24 14:41		S0
13C28:2FTS (S)	204	%.	50-150	1	10/23/24 14:27	10/24/24 14:41		S0
13C24:2FTS (S)	134	%.	50-150	1	10/23/24 14:27	10/24/24 14:41		
13C2-PFDoA (S)	97	%.	50-150	1	10/23/24 14:27	10/24/24 14:41		
13C2PFHxDA (S)	77	%.	50-150	1	10/23/24 14:27	10/24/24 14:41		
13C2-PFTA (S)	95	%.	50-150	1	10/23/24 14:27	10/24/24 14:41		
13C3HFPO-DA (S)	64	%.	50-150	1	10/23/24 14:27	10/24/24 14:41		
13C3-PFBS (S)	81	%.	50-150	1	10/23/24 14:27	10/24/24 14:41		
13C3-PFHxS (S)	93	%.	50-150	1	10/23/24 14:27	10/24/24 14:41		
13C4-PFBA (S)	60	%.	50-150	1	10/23/24 14:27	10/24/24 14:41		
13C4-PFHpA (S)	93	%.	50-150	1	10/23/24 14:27	10/24/24 14:41		
13C5-PFHxA (S)	90	%.	50-150	1	10/23/24 14:27	10/24/24 14:41		
13C5-PFPeA (S)	60	%.	50-150	1	10/23/24 14:27	10/24/24 14:41		
13C6-PFDA (S)	107	%.	50-150	1	10/23/24 14:27	10/24/24 14:41		
13C7-PFUdA (S)	103	%.	50-150	1	10/23/24 14:27	10/24/24 14:41		
13C8-PFOA (S)	95	%.	50-150	1	10/23/24 14:27	10/24/24 14:41		
13C8-PFOS (S)	100	%.	50-150	1	10/23/24 14:27	10/24/24 14:41		

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ANALYTICAL RESULTS

Project: 30214036.0370B RACER Lansing
Pace Project No.: 10710540

Sample: P3-MH-284_100324 **Lab ID: 10710540004** Collected: 10/03/24 13:32 Received: 10/04/24 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
PFAS ID NPW	Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178 Pace Analytical Services - Minneapolis							
Surrogates								
13C8-PFOSA (S)	71	%.	50-150	1	10/23/24 14:27	10/24/24 14:41		
13C9-PFNA (S)	98	%.	50-150	1	10/23/24 14:27	10/24/24 14:41		
d3-MeFOSAA (S)	103	%.	50-150	1	10/23/24 14:27	10/24/24 14:41		
d3-NMeFOSA (S)	19	%.	10-150	1	10/23/24 14:27	10/24/24 14:41		
d5-EtFOSAA (S)	106	%.	50-150	1	10/23/24 14:27	10/24/24 14:41		
d5-NEtFOSA (S)	19	%.	10-150	1	10/23/24 14:27	10/24/24 14:41		
d7-NMeFOSE (S)	51	%.	10-150	1	10/23/24 14:27	10/24/24 14:41		
d9-NEtFOSE (S)	49	%.	10-150	1	10/23/24 14:27	10/24/24 14:41		

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ANALYTICAL RESULTS

Project: 30214036.0370B RACER Lansing
Pace Project No.: 10710540

Sample: P2-MH-W_100324 **Lab ID: 10710540005** Collected: 10/03/24 14:15 Received: 10/04/24 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
PFAS ID NPW	Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178 Pace Analytical Services - Minneapolis							
11Cl-PF3OUdS	ND	ng/L	1.9	1	10/23/24 14:27	10/24/24 14:48	763051-92-9	
4:2 FTS	ND	ng/L	1.9	1	10/23/24 14:27	10/24/24 14:48	757124-72-4	
6:2 FTS	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 14:48	27619-97-2	
8:2 FTS	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 14:48	39108-34-4	
9Cl-PF3ONS	ND	ng/L	1.9	1	10/23/24 14:27	10/24/24 14:48	756426-58-1	
ADONA	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 14:48	919005-14-4	
HFPO-DA	ND	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:48	13252-13-6	
NEtFOSAA	ND	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:48	2991-50-6	
NMeFOSAA	ND	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:48	2355-31-9	
PFBS	ND	ng/L	1.8	1	10/23/24 14:27	10/24/24 14:48	375-73-5	
PFDA	ND	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:48	335-76-2	
PFHxA	ND	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:48	307-24-4	
PFBA	**4.3**	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:48	375-22-4	
PFDS	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 14:48	335-77-3	
PFHpS	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 14:48	375-92-8	
PFNS	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 14:48	68259-12-1	
PFOSA	ND	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:48	754-91-6	
PFPeA	ND	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:48	2706-90-3	
PFPeS	ND	ng/L	1.9	1	10/23/24 14:27	10/24/24 14:48	2706-91-4	
PFDoA	ND	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:48	307-55-1	
PFHpA	ND	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:48	375-85-9	
PFHxS	ND	ng/L	1.9	1	10/23/24 14:27	10/24/24 14:48	355-46-4	
PFNA	ND	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:48	375-95-1	
PFOS	ND	ng/L	1.9	1	10/23/24 14:27	10/24/24 14:48	1763-23-1	
PFOA	ND	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:48	335-67-1	
PFTeDA	ND	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:48	376-06-7	
PFTrDA	ND	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:48	72629-94-8	
PFUnA	ND	ng/L	2.1	1	10/23/24 14:27	10/24/24 14:48	2058-94-8	
Surrogates								
13C26:2FTS (S)	126	%.	50-150	1	10/23/24 14:27	10/24/24 14:48		
13C28:2FTS (S)	209	%.	50-150	1	10/23/24 14:27	10/24/24 14:48		S0
13C24:2FTS (S)	101	%.	50-150	1	10/23/24 14:27	10/24/24 14:48		
13C2-PFDoA (S)	92	%.	50-150	1	10/23/24 14:27	10/24/24 14:48		
13C2PFHxDA (S)	87	%.	50-150	1	10/23/24 14:27	10/24/24 14:48		
13C2-PFTA (S)	95	%.	50-150	1	10/23/24 14:27	10/24/24 14:48		
13C3HFPO-DA (S)	69	%.	50-150	1	10/23/24 14:27	10/24/24 14:48		
13C3-PFBS (S)	77	%.	50-150	1	10/23/24 14:27	10/24/24 14:48		
13C3-PFHxS (S)	96	%.	50-150	1	10/23/24 14:27	10/24/24 14:48		
13C4-PFBA (S)	55	%.	50-150	1	10/23/24 14:27	10/24/24 14:48		
13C4-PFHpA (S)	94	%.	50-150	1	10/23/24 14:27	10/24/24 14:48		
13C5-PFHxA (S)	90	%.	50-150	1	10/23/24 14:27	10/24/24 14:48		
13C5-PFPeA (S)	57	%.	50-150	1	10/23/24 14:27	10/24/24 14:48		
13C6-PFDA (S)	109	%.	50-150	1	10/23/24 14:27	10/24/24 14:48		
13C7-PFUdA (S)	100	%.	50-150	1	10/23/24 14:27	10/24/24 14:48		
13C8-PFOA (S)	97	%.	50-150	1	10/23/24 14:27	10/24/24 14:48		
13C8-PFOS (S)	100	%.	50-150	1	10/23/24 14:27	10/24/24 14:48		

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ANALYTICAL RESULTS

Project: 30214036.0370B RACER Lansing
Pace Project No.: 10710540

Sample: P2-MH-W_100324 **Lab ID: 10710540005** Collected: 10/03/24 14:15 Received: 10/04/24 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
PFAS ID NPW	Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178 Pace Analytical Services - Minneapolis							
Surrogates								
13C8-PFOSA (S)	82	%.	50-150	1	10/23/24 14:27	10/24/24 14:48		
13C9-PFNA (S)	99	%.	50-150	1	10/23/24 14:27	10/24/24 14:48		
d3-MeFOSAA (S)	99	%.	50-150	1	10/23/24 14:27	10/24/24 14:48		
d3-NMeFOSA (S)	38	%.	10-150	1	10/23/24 14:27	10/24/24 14:48		
d5-EtFOSAA (S)	98	%.	50-150	1	10/23/24 14:27	10/24/24 14:48		
d5-NEtFOSA (S)	33	%.	10-150	1	10/23/24 14:27	10/24/24 14:48		
d7-NMeFOSE (S)	63	%.	10-150	1	10/23/24 14:27	10/24/24 14:48		
d9-NEtFOSE (S)	63	%.	10-150	1	10/23/24 14:27	10/24/24 14:48		

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ANALYTICAL RESULTS

Project: 30214036.0370B RACER Lansing
Pace Project No.: 10710540

Sample: P2-MH-2_100324 **Lab ID: 10710540006** Collected: 10/03/24 14:50 Received: 10/04/24 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
PFAS ID NPW	Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178 Pace Analytical Services - Minneapolis							
11Cl-PF3OUdS	ND	ng/L	1.9	1	10/23/24 14:27	10/24/24 14:55	763051-92-9	
4:2 FTS	ND	ng/L	1.9	1	10/23/24 14:27	10/24/24 14:55	757124-72-4	
6:2 FTS	ND	ng/L	1.9	1	10/23/24 14:27	10/24/24 14:55	27619-97-2	
8:2 FTS	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 14:55	39108-34-4	
9Cl-PF3ONS	ND	ng/L	1.9	1	10/23/24 14:27	10/24/24 14:55	756426-58-1	
ADONA	ND	ng/L	1.9	1	10/23/24 14:27	10/24/24 14:55	919005-14-4	
HFPO-DA	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 14:55	13252-13-6	
NEtFOSAA	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 14:55	2991-50-6	
NMeFOSAA	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 14:55	2355-31-9	
PFBS	**6.0**	ng/L	1.8	1	10/23/24 14:27	10/24/24 14:55	375-73-5	
PFDA	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 14:55	335-76-2	
PFHxA	**8.0**	ng/L	2.0	1	10/23/24 14:27	10/24/24 14:55	307-24-4	
PFBA	**17.9**	ng/L	2.0	1	10/23/24 14:27	10/24/24 14:55	375-22-4	
PFDS	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 14:55	335-77-3	
PFHpS	ND	ng/L	1.9	1	10/23/24 14:27	10/24/24 14:55	375-92-8	
PFNS	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 14:55	68259-12-1	
PFOSA	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 14:55	754-91-6	
PFPeA	**5.0**	ng/L	2.0	1	10/23/24 14:27	10/24/24 14:55	2706-90-3	
PFPeS	ND	ng/L	1.9	1	10/23/24 14:27	10/24/24 14:55	2706-91-4	
PFDoA	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 14:55	307-55-1	
PFHpA	**5.4**	ng/L	2.0	1	10/23/24 14:27	10/24/24 14:55	375-85-9	
PFHxS	**3.6**	ng/L	1.9	1	10/23/24 14:27	10/24/24 14:55	355-46-4	
PFNA	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 14:55	375-95-1	
PFOS	**14.8**	ng/L	1.9	1	10/23/24 14:27	10/24/24 14:55	1763-23-1	
PFOA	**14.5**	ng/L	2.0	1	10/23/24 14:27	10/24/24 14:55	335-67-1	
PFTeDA	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 14:55	376-06-7	
PFTrDA	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 14:55	72629-94-8	
PFUnA	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 14:55	2058-94-8	
Surrogates								
13C26:2FTS (S)	241	%.	50-150	1	10/23/24 14:27	10/24/24 14:55		S0
13C28:2FTS (S)	273	%.	50-150	1	10/23/24 14:27	10/24/24 14:55		S0
13C24:2FTS (S)	177	%.	50-150	1	10/23/24 14:27	10/24/24 14:55		S0
13C2-PFDoA (S)	93	%.	50-150	1	10/23/24 14:27	10/24/24 14:55		
13C2PFHxDA (S)	34	%.	50-150	1	10/23/24 14:27	10/24/24 14:55		S0
13C2-PFTA (S)	76	%.	50-150	1	10/23/24 14:27	10/24/24 14:55		
13C3HFPO-DA (S)	49	%.	50-150	1	10/23/24 14:27	10/24/24 14:55		S0
13C3-PFBS (S)	69	%.	50-150	1	10/23/24 14:27	10/24/24 14:55		
13C3-PFHxS (S)	79	%.	50-150	1	10/23/24 14:27	10/24/24 14:55		
13C4-PFBA (S)	43	%.	50-150	1	10/23/24 14:27	10/24/24 14:55		S0
13C4-PFHpA (S)	79	%.	50-150	1	10/23/24 14:27	10/24/24 14:55		
13C5-PFHxA (S)	78	%.	50-150	1	10/23/24 14:27	10/24/24 14:55		
13C5-PFPeA (S)	48	%.	50-150	1	10/23/24 14:27	10/24/24 14:55		S0
13C6-PFDA (S)	96	%.	50-150	1	10/23/24 14:27	10/24/24 14:55		
13C7-PFUdA (S)	100	%.	50-150	1	10/23/24 14:27	10/24/24 14:55		
13C8-PFOA (S)	79	%.	50-150	1	10/23/24 14:27	10/24/24 14:55		
13C8-PFOS (S)	94	%.	50-150	1	10/23/24 14:27	10/24/24 14:55		

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: 30214036.0370B RACER Lansing
Pace Project No.: 10710540

Sample: P2-MH-2_100324 **Lab ID: 10710540006** Collected: 10/03/24 14:50 Received: 10/04/24 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
PFAS ID NPW	Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178 Pace Analytical Services - Minneapolis							
Surrogates								
13C8-PFOSA (S)	36	%.	50-150	1	10/23/24 14:27	10/24/24 14:55		S0
13C9-PFNA (S)	78	%.	50-150	1	10/23/24 14:27	10/24/24 14:55		
d3-MeFOSAA (S)	92	%.	50-150	1	10/23/24 14:27	10/24/24 14:55		
d3-NMeFOSA (S)	2	%.	10-150	1	10/23/24 14:27	10/24/24 14:55		S0
d5-EtFOSAA (S)	95	%.	50-150	1	10/23/24 14:27	10/24/24 14:55		
d5-NEtFOSA (S)	1	%.	10-150	1	10/23/24 14:27	10/24/24 14:55		S0
d7-NMeFOSE (S)	6	%.	10-150	1	10/23/24 14:27	10/24/24 14:55		S0
d9-NEtFOSE (S)	5	%.	10-150	1	10/23/24 14:27	10/24/24 14:55		S0

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ANALYTICAL RESULTS

Project: 30214036.0370B RACER Lansing
Pace Project No.: 10710540

Sample: DUP-01_100324 **Lab ID: 10710540007** Collected: 10/03/24 00:00 Received: 10/04/24 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
PFAS ID NPW	Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178							
	Pace Analytical Services - Minneapolis							
11Cl-PF3OUdS	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 15:03	763051-92-9	
4:2 FTS	ND	ng/L	1.9	1	10/23/24 14:27	10/24/24 15:03	757124-72-4	
6:2 FTS	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 15:03	27619-97-2	
8:2 FTS	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 15:03	39108-34-4	
9Cl-PF3ONS	ND	ng/L	1.9	1	10/23/24 14:27	10/24/24 15:03	756426-58-1	
ADONA	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 15:03	919005-14-4	
HFPO-DA	ND	ng/L	2.1	1	10/23/24 14:27	10/24/24 15:03	13252-13-6	
NEtFOSAA	ND	ng/L	2.1	1	10/23/24 14:27	10/24/24 15:03	2991-50-6	
NMeFOSAA	ND	ng/L	2.1	1	10/23/24 14:27	10/24/24 15:03	2355-31-9	
PFBS	ND	ng/L	1.8	1	10/23/24 14:27	10/24/24 15:03	375-73-5	
PFDA	ND	ng/L	2.1	1	10/23/24 14:27	10/24/24 15:03	335-76-2	
PFHxA	**13.6**	ng/L	2.1	1	10/23/24 14:27	10/24/24 15:03	307-24-4	
PFBA	**14.9**	ng/L	2.1	1	10/23/24 14:27	10/24/24 15:03	375-22-4	
PFDS	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 15:03	335-77-3	
PFHpS	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 15:03	375-92-8	
PFNS	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 15:03	68259-12-1	
PFOSA	ND	ng/L	2.1	1	10/23/24 14:27	10/24/24 15:03	754-91-6	
PFPeA	**13.7**	ng/L	2.1	1	10/23/24 14:27	10/24/24 15:03	2706-90-3	
PFPeS	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 15:03	2706-91-4	
PFDoA	ND	ng/L	2.1	1	10/23/24 14:27	10/24/24 15:03	307-55-1	
PFHpA	**10.0**	ng/L	2.1	1	10/23/24 14:27	10/24/24 15:03	375-85-9	
PFHxS	ND	ng/L	1.9	1	10/23/24 14:27	10/24/24 15:03	355-46-4	
PFNA	**3.2**	ng/L	2.1	1	10/23/24 14:27	10/24/24 15:03	375-95-1	
PFOS	**14.9**	ng/L	1.9	1	10/23/24 14:27	10/24/24 15:03	1763-23-1	
PFOA	**23.6**	ng/L	2.1	1	10/23/24 14:27	10/24/24 15:03	335-67-1	
PFTeDA	ND	ng/L	2.1	1	10/23/24 14:27	10/24/24 15:03	376-06-7	
PFTrDA	ND	ng/L	2.1	1	10/23/24 14:27	10/24/24 15:03	72629-94-8	
PFUnA	ND	ng/L	2.1	1	10/23/24 14:27	10/24/24 15:03	2058-94-8	
Surrogates								
13C26:2FTS (S)	207	%.	50-150	1	10/23/24 14:27	10/24/24 15:03		S0
13C28:2FTS (S)	265	%.	50-150	1	10/23/24 14:27	10/24/24 15:03		S0
13C24:2FTS (S)	147	%.	50-150	1	10/23/24 14:27	10/24/24 15:03		
13C2-PFDoA (S)	107	%.	50-150	1	10/23/24 14:27	10/24/24 15:03		
13C2PFHxDA (S)	93	%.	50-150	1	10/23/24 14:27	10/24/24 15:03		
13C2-PFTA (S)	103	%.	50-150	1	10/23/24 14:27	10/24/24 15:03		
13C3HFPO-DA (S)	62	%.	50-150	1	10/23/24 14:27	10/24/24 15:03		
13C3-PFBS (S)	78	%.	50-150	1	10/23/24 14:27	10/24/24 15:03		
13C3-PFHxS (S)	93	%.	50-150	1	10/23/24 14:27	10/24/24 15:03		
13C4-PFBA (S)	57	%.	50-150	1	10/23/24 14:27	10/24/24 15:03		
13C4-PFHpA (S)	92	%.	50-150	1	10/23/24 14:27	10/24/24 15:03		
13C5-PFHxA (S)	89	%.	50-150	1	10/23/24 14:27	10/24/24 15:03		
13C5-PFPeA (S)	56	%.	50-150	1	10/23/24 14:27	10/24/24 15:03		
13C6-PFDA (S)	105	%.	50-150	1	10/23/24 14:27	10/24/24 15:03		
13C7-PFUdA (S)	111	%.	50-150	1	10/23/24 14:27	10/24/24 15:03		
13C8-PFOA (S)	93	%.	50-150	1	10/23/24 14:27	10/24/24 15:03		
13C8-PFOS (S)	96	%.	50-150	1	10/23/24 14:27	10/24/24 15:03		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 30214036.0370B RACER Lansing
Pace Project No.: 10710540

Sample: DUP-01_100324 **Lab ID: 10710540007** Collected: 10/03/24 00:00 Received: 10/04/24 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
PFAS ID NPW	Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178 Pace Analytical Services - Minneapolis							
Surrogates								
13C8-PFOSA (S)	85	%.	50-150	1	10/23/24 14:27	10/24/24 15:03		
13C9-PFNA (S)	90	%.	50-150	1	10/23/24 14:27	10/24/24 15:03		
d3-MeFOSAA (S)	104	%.	50-150	1	10/23/24 14:27	10/24/24 15:03		
d3-NMeFOSA (S)	58	%.	10-150	1	10/23/24 14:27	10/24/24 15:03		
d5-EtFOSAA (S)	109	%.	50-150	1	10/23/24 14:27	10/24/24 15:03		
d5-NEtFOSA (S)	57	%.	10-150	1	10/23/24 14:27	10/24/24 15:03		
d7-NMeFOSE (S)	65	%.	10-150	1	10/23/24 14:27	10/24/24 15:03		
d9-NEtFOSE (S)	65	%.	10-150	1	10/23/24 14:27	10/24/24 15:03		

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ANALYTICAL RESULTS

Project: 30214036.0370B RACER Lansing
Pace Project No.: 10710540

Sample: FB-01_100324 **Lab ID: 10710540008** Collected: 10/03/24 15:30 Received: 10/04/24 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
PFAS ID NPW	Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178							
	Pace Analytical Services - Minneapolis							
11Cl-PF3OUdS	ND	ng/L	1.9	1	10/23/24 14:27	10/24/24 15:10	763051-92-9	
4:2 FTS	ND	ng/L	1.9	1	10/23/24 14:27	10/24/24 15:10	757124-72-4	
6:2 FTS	ND	ng/L	1.9	1	10/23/24 14:27	10/24/24 15:10	27619-97-2	
8:2 FTS	ND	ng/L	1.9	1	10/23/24 14:27	10/24/24 15:10	39108-34-4	
9Cl-PF3ONS	ND	ng/L	1.8	1	10/23/24 14:27	10/24/24 15:10	756426-58-1	
ADONA	ND	ng/L	1.9	1	10/23/24 14:27	10/24/24 15:10	919005-14-4	
HFPO-DA	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 15:10	13252-13-6	
NEtFOSAA	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 15:10	2991-50-6	
NMeFOSAA	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 15:10	2355-31-9	
PFBS	ND	ng/L	1.8	1	10/23/24 14:27	10/24/24 15:10	375-73-5	
PFDA	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 15:10	335-76-2	
PFHxA	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 15:10	307-24-4	
PFBA	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 15:10	375-22-4	
PFDS	ND	ng/L	1.9	1	10/23/24 14:27	10/24/24 15:10	335-77-3	
PFHpS	ND	ng/L	1.9	1	10/23/24 14:27	10/24/24 15:10	375-92-8	
PFNS	ND	ng/L	1.9	1	10/23/24 14:27	10/24/24 15:10	68259-12-1	
PFOSA	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 15:10	754-91-6	
PFPeA	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 15:10	2706-90-3	
PFPeS	ND	ng/L	1.9	1	10/23/24 14:27	10/24/24 15:10	2706-91-4	
PFDoA	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 15:10	307-55-1	
PFHpA	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 15:10	375-85-9	
PFHxS	ND	ng/L	1.8	1	10/23/24 14:27	10/24/24 15:10	355-46-4	
PFNA	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 15:10	375-95-1	
PFOS	ND	ng/L	1.8	1	10/23/24 14:27	10/24/24 15:10	1763-23-1	
PFOA	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 15:10	335-67-1	
PFTeDA	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 15:10	376-06-7	
PFTrDA	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 15:10	72629-94-8	
PFUnA	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 15:10	2058-94-8	
Surrogates								
13C26:2FTS (S)	100	%.	50-150	1	10/23/24 14:27	10/24/24 15:10		
13C28:2FTS (S)	356	%.	50-150	1	10/23/24 14:27	10/24/24 15:10		S3
13C24:2FTS (S)	74	%.	50-150	1	10/23/24 14:27	10/24/24 15:10		
13C2-PFDoA (S)	105	%.	50-150	1	10/23/24 14:27	10/24/24 15:10		
13C2PFHxDA (S)	84	%.	50-150	1	10/23/24 14:27	10/24/24 15:10		
13C2-PFTA (S)	116	%.	50-150	1	10/23/24 14:27	10/24/24 15:10		
13C3HFPO-DA (S)	83	%.	50-150	1	10/23/24 14:27	10/24/24 15:10		
13C3-PFBS (S)	102	%.	50-150	1	10/23/24 14:27	10/24/24 15:10		
13C3-PFHxS (S)	101	%.	50-150	1	10/23/24 14:27	10/24/24 15:10		
13C4-PFBA (S)	89	%.	50-150	1	10/23/24 14:27	10/24/24 15:10		
13C4-PFHpA (S)	99	%.	50-150	1	10/23/24 14:27	10/24/24 15:10		
13C5-PFHxA (S)	96	%.	50-150	1	10/23/24 14:27	10/24/24 15:10		
13C5-PFPeA (S)	90	%.	50-150	1	10/23/24 14:27	10/24/24 15:10		
13C6-PFDA (S)	114	%.	50-150	1	10/23/24 14:27	10/24/24 15:10		
13C7-PFUdA (S)	108	%.	50-150	1	10/23/24 14:27	10/24/24 15:10		
13C8-PFOA (S)	103	%.	50-150	1	10/23/24 14:27	10/24/24 15:10		
13C8-PFOS (S)	99	%.	50-150	1	10/23/24 14:27	10/24/24 15:10		

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ANALYTICAL RESULTS

Project: 30214036.0370B RACER Lansing
Pace Project No.: 10710540

Sample: FB-01_100324 **Lab ID: 10710540008** Collected: 10/03/24 15:30 Received: 10/04/24 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
PFAS ID NPW	Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178 Pace Analytical Services - Minneapolis							
Surrogates								
13C8-PFOSA (S)	91	%.	50-150	1	10/23/24 14:27	10/24/24 15:10		
13C9-PFNA (S)	105	%.	50-150	1	10/23/24 14:27	10/24/24 15:10		
d3-MeFOSAA (S)	104	%.	50-150	1	10/23/24 14:27	10/24/24 15:10		
d3-NMeFOSA (S)	55	%.	10-150	1	10/23/24 14:27	10/24/24 15:10		
d5-EtFOSAA (S)	108	%.	50-150	1	10/23/24 14:27	10/24/24 15:10		
d5-NEtFOSA (S)	56	%.	10-150	1	10/23/24 14:27	10/24/24 15:10		
d7-NMeFOSE (S)	80	%.	10-150	1	10/23/24 14:27	10/24/24 15:10		
d9-NEtFOSE (S)	79	%.	10-150	1	10/23/24 14:27	10/24/24 15:10		

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ANALYTICAL RESULTS

Project: 30214036.0370B RACER Lansing
Pace Project No.: 10710540

Sample: EB-01_100324 **Lab ID: 10710540009** Collected: 10/03/24 15:35 Received: 10/04/24 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
PFAS ID NPW	Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178 Pace Analytical Services - Minneapolis							
11Cl-PF3OUdS	ND	ng/L	1.9	1	10/23/24 14:27	10/24/24 15:32	763051-92-9	
4:2 FTS	ND	ng/L	1.9	1	10/23/24 14:27	10/24/24 15:32	757124-72-4	
6:2 FTS	ND	ng/L	1.9	1	10/23/24 14:27	10/24/24 15:32	27619-97-2	
8:2 FTS	ND	ng/L	1.9	1	10/23/24 14:27	10/24/24 15:32	39108-34-4	
9Cl-PF3ONS	ND	ng/L	1.8	1	10/23/24 14:27	10/24/24 15:32	756426-58-1	
ADONA	ND	ng/L	1.9	1	10/23/24 14:27	10/24/24 15:32	919005-14-4	
HFPO-DA	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 15:32	13252-13-6	
NEtFOSAA	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 15:32	2991-50-6	
NMeFOSAA	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 15:32	2355-31-9	
PFBS	ND	ng/L	1.8	1	10/23/24 14:27	10/24/24 15:32	375-73-5	
PFDA	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 15:32	335-76-2	
PFHxA	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 15:32	307-24-4	
PFBA	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 15:32	375-22-4	
PFDS	ND	ng/L	1.9	1	10/23/24 14:27	10/24/24 15:32	335-77-3	
PFHpS	ND	ng/L	1.9	1	10/23/24 14:27	10/24/24 15:32	375-92-8	
PFNS	ND	ng/L	1.9	1	10/23/24 14:27	10/24/24 15:32	68259-12-1	
PFOSA	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 15:32	754-91-6	
PFPeA	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 15:32	2706-90-3	
PFPeS	ND	ng/L	1.9	1	10/23/24 14:27	10/24/24 15:32	2706-91-4	
PFDoA	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 15:32	307-55-1	
PFHpA	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 15:32	375-85-9	
PFHxS	ND	ng/L	1.8	1	10/23/24 14:27	10/24/24 15:32	355-46-4	
PFNA	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 15:32	375-95-1	
PFOS	ND	ng/L	1.8	1	10/23/24 14:27	10/24/24 15:32	1763-23-1	
PFOA	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 15:32	335-67-1	
PFTeDA	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 15:32	376-06-7	
PFTrDA	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 15:32	72629-94-8	
PFUnA	ND	ng/L	2.0	1	10/23/24 14:27	10/24/24 15:32	2058-94-8	
Surrogates								
13C26:2FTS (S)	93	%.	50-150	1	10/23/24 14:27	10/24/24 15:32		
13C28:2FTS (S)	248	%.	50-150	1	10/23/24 14:27	10/24/24 15:32		S3
13C24:2FTS (S)	89	%.	50-150	1	10/23/24 14:27	10/24/24 15:32		
13C2-PFDoA (S)	110	%.	50-150	1	10/23/24 14:27	10/24/24 15:32		
13C2PFHxDA (S)	80	%.	50-150	1	10/23/24 14:27	10/24/24 15:32		
13C2-PFTA (S)	109	%.	50-150	1	10/23/24 14:27	10/24/24 15:32		
13C3HFPO-DA (S)	86	%.	50-150	1	10/23/24 14:27	10/24/24 15:32		
13C3-PFBS (S)	108	%.	50-150	1	10/23/24 14:27	10/24/24 15:32		
13C3-PFHxS (S)	100	%.	50-150	1	10/23/24 14:27	10/24/24 15:32		
13C4-PFBA (S)	87	%.	50-150	1	10/23/24 14:27	10/24/24 15:32		
13C4-PFHpA (S)	104	%.	50-150	1	10/23/24 14:27	10/24/24 15:32		
13C5-PFHxA (S)	100	%.	50-150	1	10/23/24 14:27	10/24/24 15:32		
13C5-PFPeA (S)	98	%.	50-150	1	10/23/24 14:27	10/24/24 15:32		
13C6-PFDA (S)	120	%.	50-150	1	10/23/24 14:27	10/24/24 15:32		
13C7-PFUdA (S)	113	%.	50-150	1	10/23/24 14:27	10/24/24 15:32		
13C8-PFOA (S)	108	%.	50-150	1	10/23/24 14:27	10/24/24 15:32		
13C8-PFOS (S)	105	%.	50-150	1	10/23/24 14:27	10/24/24 15:32		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 30214036.0370B RACER Lansing
Pace Project No.: 10710540

Sample: EB-01_100324 **Lab ID: 10710540009** Collected: 10/03/24 15:35 Received: 10/04/24 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
PFAS ID NPW	Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178 Pace Analytical Services - Minneapolis							
Surrogates								
13C8-PFOSA (S)	94	%.	50-150	1	10/23/24 14:27	10/24/24 15:32		
13C9-PFNA (S)	115	%.	50-150	1	10/23/24 14:27	10/24/24 15:32		
d3-MeFOSAA (S)	97	%.	50-150	1	10/23/24 14:27	10/24/24 15:32		
d3-NMeFOSA (S)	71	%.	10-150	1	10/23/24 14:27	10/24/24 15:32		
d5-EtFOSAA (S)	101	%.	50-150	1	10/23/24 14:27	10/24/24 15:32		
d5-NEtFOSA (S)	68	%.	10-150	1	10/23/24 14:27	10/24/24 15:32		
d7-NMeFOSE (S)	84	%.	10-150	1	10/23/24 14:27	10/24/24 15:32		
d9-NEtFOSE (S)	83	%.	10-150	1	10/23/24 14:27	10/24/24 15:32		

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QUALITY CONTROL DATA

Project: 30214036.0370B RACER Lansing
Pace Project No.: 10710540

QC Batch: 974872
QC Batch Method: ENV-SOP-MIN4-0178
Analysis Method: ENV-SOP-MIN4-0178
Analysis Description: PFAS Compounds, Water
Laboratory: Pace Analytical Services - Minneapolis
Associated Lab Samples: 10710540001, 10710540002, 10710540003, 10710540004, 10710540005, 10710540006, 10710540007, 10710540008, 10710540009

METHOD BLANK: 5095803
Matrix: Water
Associated Lab Samples: 10710540001, 10710540002, 10710540003, 10710540004, 10710540005, 10710540006, 10710540007, 10710540008, 10710540009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
11Cl-PF3OUdS	ng/L	ND	1.9	10/24/24 13:43	
4:2 FTS	ng/L	ND	1.9	10/24/24 13:43	
6:2 FTS	ng/L	ND	1.9	10/24/24 13:43	
8:2 FTS	ng/L	ND	1.9	10/24/24 13:43	
9Cl-PF3ONS	ng/L	ND	1.9	10/24/24 13:43	
ADONA	ng/L	ND	1.9	10/24/24 13:43	
HFPO-DA	ng/L	ND	2.0	10/24/24 13:43	
NEtFOSAA	ng/L	ND	2.0	10/24/24 13:43	
NMeFOSAA	ng/L	ND	2.0	10/24/24 13:43	
PFBA	ng/L	ND	2.0	10/24/24 13:43	
PFBS	ng/L	ND	1.8	10/24/24 13:43	
PFDA	ng/L	ND	2.0	10/24/24 13:43	
PFDoA	ng/L	ND	2.0	10/24/24 13:43	
PFDS	ng/L	ND	1.9	10/24/24 13:43	
PFHpA	ng/L	ND	2.0	10/24/24 13:43	
PFHpS	ng/L	ND	1.9	10/24/24 13:43	
PFHxA	ng/L	ND	2.0	10/24/24 13:43	
PFHxS	ng/L	ND	1.8	10/24/24 13:43	
PFNA	ng/L	ND	2.0	10/24/24 13:43	
PFNS	ng/L	ND	1.9	10/24/24 13:43	
PFOA	ng/L	ND	2.0	10/24/24 13:43	
PFOS	ng/L	ND	1.9	10/24/24 13:43	
PFOSA	ng/L	ND	2.0	10/24/24 13:43	
PFPeA	ng/L	ND	2.0	10/24/24 13:43	
PFPeS	ng/L	ND	1.9	10/24/24 13:43	
PFTeDA	ng/L	ND	2.0	10/24/24 13:43	
PFTrDA	ng/L	ND	2.0	10/24/24 13:43	
PFUnA	ng/L	ND	2.0	10/24/24 13:43	
13C2-PFDoA (S)	%.	89	50-150	10/24/24 13:43	
13C2-PFTA (S)	%.	93	50-150	10/24/24 13:43	
13C24:2FTS (S)	%.	101	50-150	10/24/24 13:43	
13C26:2FTS (S)	%.	106	50-150	10/24/24 13:43	
13C28:2FTS (S)	%.	180	50-150	10/24/24 13:43	S3
13C2PFHxDA (S)	%.	61	50-150	10/24/24 13:43	
13C3-PFBS (S)	%.	94	50-150	10/24/24 13:43	
13C3-PFHxS (S)	%.	93	50-150	10/24/24 13:43	
13C3HFPO-DA (S)	%.	80	50-150	10/24/24 13:43	
13C4-PFBA (S)	%.	92	50-150	10/24/24 13:43	
13C4-PFHpA (S)	%.	93	50-150	10/24/24 13:43	

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QUALITY CONTROL DATA

Project: 30214036.0370B RACER Lansing
Pace Project No.: 10710540

METHOD BLANK: 5095803 Matrix: Water

Associated Lab Samples: 10710540001, 10710540002, 10710540003, 10710540004, 10710540005, 10710540006, 10710540007, 10710540008, 10710540009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
13C5-PFHxA (S)	%.	90	50-150	10/24/24 13:43	
13C5-PFPeA (S)	%.	92	50-150	10/24/24 13:43	
13C6-PFDA (S)	%.	101	50-150	10/24/24 13:43	
13C7-PFUdA (S)	%.	93	50-150	10/24/24 13:43	
13C8-PFOA (S)	%.	96	50-150	10/24/24 13:43	
13C8-PFOS (S)	%.	84	50-150	10/24/24 13:43	
13C8-PFOSA (S)	%.	87	50-150	10/24/24 13:43	
13C9-PFNA (S)	%.	96	50-150	10/24/24 13:43	
d3-MeFOSAA (S)	%.	88	50-150	10/24/24 13:43	
d3-NMeFOSA (S)	%.	50	10-150	10/24/24 13:43	
d5-EtFOSAA (S)	%.	91	50-150	10/24/24 13:43	
d5-NEtFOSA (S)	%.	51	10-150	10/24/24 13:43	
d7-NMeFOSE (S)	%.	73	10-150	10/24/24 13:43	
d9-NEtFOSE (S)	%.	74	10-150	10/24/24 13:43	

LABORATORY CONTROL SAMPLE & LCSD: 5095804 5095805

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
11Cl-PF3OUdS	ng/L	3.9	3.7	3.2	96	85	70-140	15	30	
4:2 FTS	ng/L	3.8	3.4	3.4	89	92	63-143	0	30	
6:2 FTS	ng/L	3.9	3.5	3.5	90	94	64-140	1	30	
8:2 FTS	ng/L	3.9	3.5	3.6	88	95	67-138	3	30	
9Cl-PF3ONS	ng/L	3.8	3.7	3.3	96	90	70-140	10	30	
ADONA	ng/L	3.9	3.3	3.1	85	83	70-140	6	30	
HFPO-DA	ng/L	4.1	3.7	3.2	90	81	70-140	14	30	
NEtFOSAA	ng/L	4.1	3.7	3.5	91	90	61-135	5	30	
NMeFOSAA	ng/L	4.1	3.9	3.1	94	79	65-136	21	30	
PFBA	ng/L	4.1	3.7	3.4	91	87	73-129	8	30	
PFBS	ng/L	3.6	3.4	3.1	94	89	72-130	9	30	
PFDA	ng/L	4.1	3.7	3.5	90	88	71-129	6	30	
PFDoA	ng/L	4.1	3.6	3.4	89	87	72-134	6	30	
PFDS	ng/L	3.9	3.3	3.4	84	91	53-142	4	30	
PFHpA	ng/L	4.1	3.7	3.5	91	88	72-130	7	30	
PFHpS	ng/L	3.9	3.7	3.6	95	97	69-134	2	30	
PFHxA	ng/L	4.1	3.8	3.5	93	88	72-129	9	30	
PFHxS	ng/L	3.7	3.6	3.2	96	88	68-131	12	30	
PFNA	ng/L	4.1	3.9	3.4	97	87	69-130	14	30	
PFNS	ng/L	3.9	3.7	3.3	95	88	69-127	12	30	
PFOA	ng/L	4.1	3.7	3.4	90	88	71-133	6	30	
PFOS	ng/L	3.8	3.9	3.2	103	87	65-140	20	30	
PFOSA	ng/L	4.1	4.2	3.9	103	99	67-137	8	30	
PFPeA	ng/L	4.1	3.7	3.5	91	88	72-129	7	30	
PFPeS	ng/L	3.8	3.6	3.1	93	84	71-127	14	30	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 30214036.0370B RACER Lansing
Pace Project No.: 10710540

LABORATORY CONTROL SAMPLE & LCSD: 5095804 5095805

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
PFTeDA	ng/L	4.1	3.7	3.4	91	86	71-132	9	30	
PFTrDA	ng/L	4.1	3.6	3.2	89	81	65-144	13	30	
PFUnA	ng/L	4.1	3.7	3.4	90	87	69-133	7	30	
13C2-PFDoA (S)	%.				112	107	50-150			
13C2-PFTA (S)	%.				113	109	50-150			
13C24:2FTS (S)	%.				121	115	50-150			
13C26:2FTS (S)	%.				131	123	50-150			
13C28:2FTS (S)	%.				230	179	50-150			S0
13C2PFHxDA (S)	%.				85	81	50-150			
13C3-PFBS (S)	%.				112	110	50-150			
13C3-PFHxS (S)	%.				109	108	50-150			
13C3HFPO-DA (S)	%.				91	93	50-150			
13C4-PFBA (S)	%.				104	103	50-150			
13C4-PFHpA (S)	%.				108	107	50-150			
13C5-PFHxA (S)	%.				105	104	50-150			
13C5-PFPeA (S)	%.				107	105	50-150			
13C6-PFDA (S)	%.				124	121	50-150			
13C7-PFUdA (S)	%.				114	113	50-150			
13C8-PFOA (S)	%.				117	113	50-150			
13C8-PFOS (S)	%.				105	102	50-150			
13C8-PFOSA (S)	%.				101	98	50-150			
13C9-PFNA (S)	%.				110	113	50-150			
d3-MeFOSAA (S)	%.				105	105	50-150			
d3-NMeFOSA (S)	%.				73	77	10-150			
d5-EtFOSAA (S)	%.				115	113	50-150			
d5-NEtFOSA (S)	%.				75	78	10-150			
d7-NMeFOSE (S)	%.				92	90	10-150			
d9-NEtFOSE (S)	%.				92	89	10-150			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 5095806 5095807

Parameter	Units	10710540001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
11Cl-PF3OUdS	ng/L	ND	3.9	4	3.4	3.6	86	91	70-130	7	30	
4:2 FTS	ng/L	ND	3.9	3.9	3.9	3.6	101	92	70-130	8	30	
6:2 FTS	ng/L	ND	3.9	4	4.1	4.1	104	104	70-130	2	30	
8:2 FTS	ng/L	ND	4	4	4.4	3.4	112	84	70-130	27	30	
9Cl-PF3ONS	ng/L	ND	3.9	3.9	3.7	3.6	97	93	70-130	3	30	
ADONA	ng/L	ND	3.9	4	3.4	3.4	88	86	70-130	2	30	
HFPO-DA	ng/L	ND	4.1	4.2	4.4	4.1	106	98	70-130	7	30	
NEtFOSAA	ng/L	ND	4.1	4.2	4.4	4.2	106	99	70-130	5	30	
NMeFOSAA	ng/L	ND	4.1	4.2	4.3	3.8	102	88	70-130	13	30	
PFBA	ng/L	12.8	4.1	4.2	17.4	14.3	111	35	70-130	20	30	M1
PFBS	ng/L	3.1	3.7	3.7	6.3	6.4	89	89	70-130	1	30	
PFDA	ng/L	ND	4.1	4.2	4.1	4.1	99	97	70-130	0	30	

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QUALITY CONTROL DATA

Project: 30214036.0370B RACER Lansing
Pace Project No.: 10710540

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 5095806 5095807

Parameter	Units	10710540001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
PFDoA	ng/L	ND	4.1	4.2	4.4	3.8	106	90	70-130	15	30	
PFDS	ng/L	ND	4	4	3.4	3.4	85	83	70-130	0	30	
PFHpA	ng/L	4.1	4.1	4.2	7.5	7.3	82	77	70-130	2	30	
PFHpS	ng/L	ND	4	4	3.4	3.9	86	97	70-130	13	30	
PFHxA	ng/L	12.1	4.1	4.2	17.5	17.0	130	117	70-130	3	30	
PFHxS	ng/L	5.0	3.8	3.8	9.3	8.8	114	100	70-130	5	30	
PFNA	ng/L	ND	4.1	4.2	4.6	4.0	105	89	70-130	14	30	
PFNS	ng/L	ND	4	4	3.1	5.0	77	125	70-130	48	30	R1
PFOA	ng/L	8.0	4.1	4.2	11.6	12.0	88	95	70-130	3	30	
PFOS	ng/L	4.7	3.8	3.9	8.5	8.6	99	101	70-130	2	30	
PFOSA	ng/L	ND	4.1	4.2	4.2	4.2	102	99	70-130	2	30	
PFPeA	ng/L	10.8	4.1	4.2	15.9	14.9	124	98	70-130	6	30	
PFPeS	ng/L	ND	3.9	3.9	5.1	4.2	119	93	70-130	21	30	
PFTeDA	ng/L	ND	4.1	4.2	4.1	4.0	98	95	70-130	2	30	
PFTrDA	ng/L	ND	4.1	4.2	3.7	3.7	90	89	70-130	1	30	
PFUnA	ng/L	ND	4.1	4.2	4.0	3.9	97	93	70-130	3	30	
13C2-PFDoA (S)	%.						98	83	50-150			
13C2-PFTA (S)	%.						78	82	50-150			
13C24:2FTS (S)	%.						158	120	50-150			S0
13C26:2FTS (S)	%.						226	153	50-150			S0
13C28:2FTS (S)	%.						227	207	50-150			S0
13C2PFHxDA (S)	%.						29	73	50-150			S0
13C3-PFBS (S)	%.						76	64	50-150			
13C3-PFHxS (S)	%.						90	76	50-150			
13C3HFPO-DA (S)	%.						57	49	50-150			S0
13C4-PFBA (S)	%.						45	42	50-150			S0
13C4-PFHpA (S)	%.						90	76	50-150			
13C5-PFHxA (S)	%.						89	75	50-150			
13C5-PFPeA (S)	%.						53	47	50-150			S0
13C6-PFDA (S)	%.						107	89	50-150			
13C7-PFUdA (S)	%.						106	91	50-150			
13C8-PFOA (S)	%.						94	77	50-150			
13C8-PFOS (S)	%.						104	79	50-150			
13C8-PFOSA (S)	%.						52	64	50-150			
13C9-PFNA (S)	%.						93	81	50-150			
d3-MeFOSAA (S)	%.						112	89	50-150			
d3-NMeFOSA (S)	%.						4	9	10-150			S0
d5-EtFOSAA (S)	%.						121	95	50-150			
d5-NEtFOSA (S)	%.						3	9	10-150			S0
d7-NMeFOSE (S)	%.						14	39	10-150			
d9-NEtFOSE (S)	%.						11	32	10-150			

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QUALIFIERS

Project: 30214036.0370B RACER Lansing
Pace Project No.: 10710540

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
R1	RPD value was outside control limits.
S0	Surrogate recovery outside laboratory control limits.
S3	Surrogate recovery exceeded laboratory control limits. Analyte presence below reporting limits in associated sample.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 30214036.0370B RACER Lansing
Pace Project No.: 10710540

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10710540001	**MichAve-MH-3_100324**	ENV-SOP-MIN4-0178	974872	ENV-SOP-MIN4-0178	975949
10710540002	**Verlinden-MH-5_100324**	ENV-SOP-MIN4-0178	974872	ENV-SOP-MIN4-0178	975949
10710540003	**Osborn-MH-1_100324**	ENV-SOP-MIN4-0178	974872	ENV-SOP-MIN4-0178	975949
10710540004	**P3-MH-284_100324**	ENV-SOP-MIN4-0178	974872	ENV-SOP-MIN4-0178	975949
10710540005	**P2-MH-W_100324**	ENV-SOP-MIN4-0178	974872	ENV-SOP-MIN4-0178	975949
10710540006	**P2-MH-2_100324**	ENV-SOP-MIN4-0178	974872	ENV-SOP-MIN4-0178	975949
10710540007	**DUP-01_100324**	ENV-SOP-MIN4-0178	974872	ENV-SOP-MIN4-0178	975949
10710540008	**FB-01_100324**	ENV-SOP-MIN4-0178	974872	ENV-SOP-MIN4-0178	975949
10710540009	**EB-01_100324**	ENV-SOP-MIN4-0178	974872	ENV-SOP-MIN4-0178	975949

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Pace® Location Requested (City/State):

CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here

WO# : 10710540

10710540

Company Name: Arcadis	Contact/Report To: Marina Samp / Anyssa Mandich
Street Address: 28550 Cabot Dr, Suite 500 Novi, MI 48377	Phone #: 248-994-2318
	E-Mail: marina.samp@arcadis.com
	Cc E-Mail: anyssa.mandich@arcadis.com
Customer Project #: 30214036.0370B	Invoice to: Tiffany Linder
Project Name: RACER Lansing PFAS Delineation	Invoice E-mail: tiffany.linder@arcadis.com
Site Collection Info/Facility ID (as applicable):	Purchase Order # (if applicable):
	Quote #: 0017069
Time Zone Collected: [ ] AK [ ] PT [ ] MT [ ] CT [✓] ET	County / State origin of sample(s): Michigan

Data Deliverables: [✓] Level II [ ] Level III [ ] Level IV [✓] EQUIS [ ] Other

Regulatory Program (DW, RCRA, etc.) as applicable: Reportable [ ] Yes [ ] No

Rush (Pre-approval required): [ ] Same Day [ ] 1 Day [ ] 2 Day [ ] 3 Day Other

Date Results Requested: Standard TAT (20 days)

DW PWSID # or WW Permit # as applicable:

Field Filtered (if applicable): [ ] Yes [✓] No

Analysis:

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SS), Oil (OL), Wipe (WP), Tissue (TS), Bioassay (B), Vapor (V), Surface Water (SW), Sediment (SED), Sludge (SL), Caulk (CK), Leachate (LL), Biosolid (BS), Other (OT)

Specify Container Size **: 3

Identify Container Preservative Type***: 1

Analysis Requested: PFOS/PFOA S37M, MI List of 22

** 1L, (2) 500mL, (3) 250mL, (4) 125mL, (5) 100mL, (6) 40mL vial, (7) EnCore, (8) TerraCore, (9) 90mL, (10) Other

*** Preservative Types: (1) None, (2) HNO3, (3) H2SO4, (4) HCl, (5) NaOH, (6) Zn Acetate, (7) NaHSO4, (8) Sod. Thiosulfate, (9) Ascorbic Acid, (10) MeOH, (11) Other

Lab Use Only: Proj. Mgr: | AcctNum / Client ID: | Table #: | Profile / Template: | Prelog / Bottle Ord. ID: 47323

Preservation non-conformance identified for sample.

Customer Sample ID	Matrix *	Comp / Grab	Composite Start Date	Composite Start Time	Collected or Composite End Date	Collected or Composite End Time	# Cont.	Residual Chlorine Result	Residual Chlorine Units	PFOS/PFOA S37M, MI List of 22	Sample Comment
MichAve-MH-3_100324	WW	G			10/3/24	0930	6			X	Run MS/MSD 001
Verlinden-MH-5_100324	WW	G			10/3/24	0950	2			X	002
Osborn-MH-1_100324	WW	G			10/3/24	1020	2			X	Please provide 003
P3-MH-284_100324	WW	G			10/3/24	1332	2			X	all results 004
P2-MH-W_100324	WW	G			10/3/24	1415	2			X	+ EDD 005
P2-MH-2_100324	WW	G			10/3/24	1450	2			X	006
DUP-01_100324	WW	G			10/3/24	—	2			X	007
FB-01_100324	WW	~~OT~~ ML G			10/3/24	1530	2			X	008
EB-01_100324	WW	~~OT~~ ML G			10/3/24	1535	2			X	009

Additional Instructions from Pace® :

Collected By: Printed Name: Megan Lee

Signature: Megan Lee

Customer Remarks / Special Conditions / Possible Hazards:

Coolers: | Thermometer ID: T9 | Correction Factor (°C): -0.2 | Obs. Temp. (°C): 1.3 | Corrected Temp. (°C): 1.1 | [ ] On Ice: Y

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
Megan Lee/Arcadis Megan Lee	10/03/24 1559	~~FedEx~~ ML Maryann Kenoi Arcadis	10/3/24 1559
Maryann Kenoi Arcadis	10/3/24 1630	FedEx	10/3/24 1630
			10/4/24 850

Tracking Number:

Delivered by: [ ] In-Person [ ] Courier [ ] FedEx [ ] UPS [ ] Other

Page: 1 of 1

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace® Terms and Conditions found at https://www.pacelabs.com/resource-library/resource/pace-terms-and-conditions/

ENV-FRM-MIN4-0150 v17 Sample Condition Upon Receipt

CLIENT NAME: Arcadis PROJECT #:

WO#: 10710540

PM: BN2 Due Date: 10/25/24

CLIENT: Arcadis-MI

COURIER: ☐ Client ☐ Commercial ☑ FedEx ☐ Pace ☐ SpeeDee ☐ UPS ☐ USPS

TRACKING NUMBER: 7048 1461 5645 ☐ See Exceptions form ENV-FRM-MIN4-0142

Custody Seal on Cooler/Box Present: ☑ YES ☐ NO Seals Intact: ☑ YES ☐ NO Biological Tissue Frozen: ☐ YES ☐ NO ☑ N/A

Packing Material: ☐ Bubble Bags ☑ Bubble Wrap ☐ None ☐ Other Temp Blank: ☑ YES ☐ NO Type of Ice: ☐ Blue ☐ Dry ☑ Wet ☐ Melted ☐ None

Thermometer: ☐ T1 (0461) ☐ T2 (0436) ☐ T3 (0459) ☐ T4 (0402) ☐ T5 (0178) ☐ T6 (0235) ☐ T7 (0042) ☐ T8 (0775) ☑ T9 (0727) ☐ 01339252 (1710)

Did Samples Originate in West Virginia: ☐ YES ☑ NO	Were All Container Temps taken: ☐ YES ☐ NO ☑ N/A
Correction Factor: -0.2 Cooler Temp Read w/Temp Blank: 1.3 °C Cooler Temp Corrected w/Temp Blank: 1.1 °C	Average Corrected Temp (no Temp Blank Only): ____ °C
NOTE: Temp should be above freezing to 6°C.	☐ See Exceptions Form ENV-FRM-MIN4-0142 ☐ 1 Container
USDA Regulated Soil: ☑ N/A – Water Sample/Other (describe): ____	Initials & Date of Person Examining Contents: JMW 10/4/24
Did Samples originate from one of the following states (check maps) – AL, AR, AZ, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA: ☐ YES ☑ NO	Did samples originate from a foreign source (international, including Hawaii and Puerto Rico): ☐ YES ☑ NO
NOTE: If YES to either question, fill out a Regulated Soil Checklist (ENV-FRM-MIN4-0154) and include with SCUR/COC paperwork.	

LOCATION (check one): ☐ DULUTH ☑ MINNEAPOLIS ☐ VIRGINIA	YES	NO	N/A	COMMENT(S)
Chain of Custody Present and Filled Out?	☑	☐		1.
Chain of Custody Relinquished?	☑	☐		2.
Sampler Name and/or Signature on COC?	☑	☐	☐	3.
Samples Arrived within Hold Time?	☑	☐		4. If Fecal: ☐ <8 hrs ☐ >8 hr, <24 hr ☐ No
Short Hold Time Analysis (<72 hr)?	☐	☑		5. ☐ BOD / cBOD ☐ Fecal coliform ☐ Hex Chrom ☐ HPC ☐ Nitrate ☐ Nitrite ☐ Ortho Phos ☐ Total coliform/*E. coli* ☐ Other: ____
Rush Turn Around Time Requested?	☐	☑		6.
Sufficient Sample Volume?	☑	☐		7.
Correct Containers Used? – Pace Containers Used?	☑ ☐	☐ ☑	☐	8.
Containers Intact?	☑	☐		9.
Field Filtered Volume Received for Dissolved Tests?	☐	☐	☑	10. Is sediment visible in the dissolved container: ☐ YES ☐ NO
Is sufficient information available to reconcile the samples to the COC? **NOTE:** If ID/Date/Time don't match fill out section 11. Matrix: ☐ Oil ☐ Soil ☑ Water ☐ Other	☑	☐		**11. If NO, write ID/Date/Time of container below:** ☐ See Exceptions form ENV-FRM-MIN4-0142
All containers needing acid/base preservation have been checked? All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, < 2 pH, NaOH > 9 Sulfide, NaOH > 10 Cyanide) Exceptions: VOA, Coliform, TOC/DOC, Oil & Grease, DRO/8015 (water) and Dioxins/PFAS **NOTE:** If adding preservation to the container, **verify with the PM first.** Clients may require adding preservative to the field and equipment blanks when this occurs.	☐ ☐ ☐	☐ ☐ ☐	☑ ☑ ☑	12. Sample #: ☐ HNO_3 ☐ H_2SO_4 ☐ NaOH ☐ Zinc Acetate Positive for Residual Chlorine: ☐ YES ☐ NO pH Paper Lot # Residual Chlorine / 0-6 Roll / 0-6 Strip / 0-14 Strip ☐ See Exceptions form ENV-FRM-MIN4-0142
Headspace in Methyl Mercury Container?	☐	☐	☑	13.
Extra labels present on soil VOA or WIDRO containers? Headspace in VOA Vials (greater than 6mm)?	☐ ☐	☐ ☐	☑ ☑	14. ☐ See Exceptions form ENV-FRM-MIN4-0140
Trip Blanks Present? Trip Blank Custody Seals Present?	☐ ☐	☑ ☐	☐ ☑	15. Pace Trip Blank Lot # (if purchased): ____

CLIENT NOTIFICATION / RESOLUTION FIELD DATA REQUIRED: ☐ YES ☐ NO

Person Contacted: ____ Date & Time: ____

Comments / Resolution: ____

Project Manager Review: Bryan Nguyen Date: 10/04/24

NOTE: When there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEQ Certification Office (i.e., out of hold, incorrect preservative, out of temp, incorrect containers).

Labeled By: JMW Line: 4

Report of Analysis

Arcadis U.S., Inc.
630 Plaza Drive
Suite 600
Highlands Ranch, CO 80129
Attention: Tiffany Linder

Project Name: RACER Lansing PFAS Delineation

Project Number: 30171056

Lot Number:**ZB09009**

Date Completed:03/04/2024
Revision Date: 03/06/2024

Kathy Smith

03/06/2024 4:30 PM
Approved and released by:
Project Manager II: **Kathy E. Smith**





The electronic signature above is the equivalent of a handwritten signature.
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Case Narrative
Arcadis U.S., Inc.
Lot Number: ZB09009

This report supersedes and replaces any prior reports issued under this lot number.

This report was revised March 6, 2024 to update the client sample IDs.

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.
Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved The NELAC Institute (TNI) standards, the Pace Analytical Services, LLC ("Pace") Laboratory Quality Manual, standard operating procedures (SOPs), and Pace policies. Additionally, the DoD QSM version 5.4 has been followed for these samples, and specifically Table B-15 was followed for all PFAS samples. Any exceptions to the TNI standards, the Laboratory Quality Manual, SOPs, the DoD QSM, or policies are qualified on the results page or discussed below.

All QC associated with these samples were compliant with DOD QSM 5.4 table B-15 and our PFAS SOP.
Correction factors (CF) are used to calculate the original sample concentration. The CF is the inverse of the concentration factor (sample volume / extract final volume) times the dilution factor (DF). The CF is calculated as follows:

CF = DF * FV / Vo
FV is volume of extract (mL)
Vo is initial sample volume (mL)
DF is dilution factor. For undiluted analysis, DF = 1.

Sample concentration for aqueous samples:
Concentration (ng/L) = Cs*CF,

$$C_s = \frac{\left(\frac{(A_s x C_{is})}{A_{is}}\right) - B}{M1}$$

Where

C_s is on column concentration of target analyte in the sample (ng/L)
C_{is} is concentration of internal standard in the sample (ng/L)
A_s is peak response of target analyte in the sample
A_{is} is peak response of internal standard in the sample
M1 is the average RF from ICAL or the slope from linear regression ICAL
B is the y-intercept from the ICAL

Pace is a DoD/DOE accredited laboratory; however, the following analyses are currently not listed on our DoD/DOE scope of accreditation: Drinking Water: pH EPA 150.1, Turbidity EPA 180.1, Metals EPA 200.7 & 200.8, Mercury EPA 245.1, Anions EPA 300.0, Cyanide EPA 335.4, Nitrates EPA 353.2, Orthophosphate & Phosphorus EPA 365.1, EDB/DBCP EPA 504.1, HPC SIMPLATE, Color SM 2120 B-

2011, Alkalinity SM 2320 B-2011, Specific Conductance SM 2510 B-2011, Residue-filterable (TDS) SM 2540 C, Calcium Hardness (CaCO2) SM 3500-Ca B-2011, TRC SM 4500 Cl G-2011, pH SM 4500 H=B-2011, E.Coli, Total Coliform. Non-Potable Water: Metals EPA 200.7, Strontium EPA 200.8, Chlorate EPA 300.0, Cyanide EPA 335.4, Phenolics EPA 420.4, 2-Methyl-4,6-Dinitrophenol EPA 625.1, Propane RSK-175, Specific Conductance SM 2510 B-2011, Salinity SM2520 B, Residue- total SM 2540 B, Sulfite SM 4500 SO32- B-2011, Amenable Cyanide SM 4500-CN- G-2011, BOD & CBOD SM 5210 B, MBAS SM 5540 C-2011, Boron & Titanium SW-846 6010D, Boron, Molybdenum, & Titanium SW-846 6020B, Alcohols & Glycols SW-846 8015C, Pentachlorophenol SW-846 8151A, Ethyl Acetate, Hexane, & n-Hexane SW-846 8260D, SVOC 1,4-Dioxane, 4-Dimethyl aminoazobenzene, 1,4-Naphthoquinone, 3,5-Dinitroaniline, PETN SW-846 8270E, Amenable Cyanide SW-846 9012B. Solid and Chemical Materials: Boron & Titanium SW-846 6010D, Molybdenum SW-846 6020B, Ethylene Glycol SW-846 8015B, Pentachlorophenol SW-846 8151A, Chloroprene SW-846 8260B, SVOC 1,4-Dioxane, 1,3,5-Trinitrobenzene, 1,4- Naphthoquinone, 1,4-Phenylenediamine, 2,4-Dinitrotoluene, 2,6-Dinitrotoluene, 3-Methylcholanthrene, 4-Aminobiphenyl, 4-Dimethyl aminoazobenzene, 4-Nitroquinoline-1-oxide, 7,12-Dimethylbenzo(a)anthracene, Chlorobenzilate, Diallate, Ethyl methanesulfonate, Isodrin, Isosafrole, Methyl methanesulfonate, n-Nitrosomethylethylamine, n-Nitrosomorpholine, n-Nitrosopiperidine, Piperonyl butoxide, Pronamide, Safrole, 3,5- Dinitroaniline, PETN SW-846 8270E, Oil & Grease SW-846 9071B.

Pace is a TNI accredited laboratory; however, the following analyses are currently not listed on our TNI scope of accreditation: E. coli and Total coliforms SM 9223 B-2004, Solid Chemical Material: TOC Walkley-Black, Biological Tissue: All, Non-Potable Water: SGT-HEM EPA 1664B, Silica EPA 200.7, Boron, Calcium, Silicon, Strontium EPA 200.8, Bicarbonate, Carbonate, and Hydroxide Alkalinity SM 2320 B-2011, SM 9221 C E-2006 & SM 9222D-2006, Strontium SW-846 6010D, VOC SM 6200 B-2011, Fecal Coliform Colilert-18. If you have any questions regarding this report, please contact the Pace Project Manager listed on the cover page.

PFAS
Samples ZB09009-001, ZB09009-003, ZB09009-004, ZB09009-007 required centrifugation prior to extraction, due to excessive solids present in the samples. Centrifugation was performed following the PFAS Aqueous Centrifuge Protocol; samples were spiked with Surrogate (SUR; Extracted Internal Standard/EIS) and shaken vigorously before being poured into a conical bottle and centrifuged. The centrifuged aqueous sample was decanted back into the original sample bottle, off of the condensed solids remaining in the centrifuge bottle. Original sample bottle was rinsed as normal and centrifuge bottle was rinsed with 4mL of MeOH. Centrifuge bottle rinsate was added to the elution. Samples concentrated to <5mL and reconstituted to 5mL using MeOH by transfer pipet.

Surrogate recovery for the following samples was outside the upper control limit: ZB09009-001, ZB09009-002, ZB09009-003, ZB09009-004, ZB09009-005, ZB09009-006, ZB09009-007. These samples did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

The MS/MSD associated with sample ZB09009-001 had compounds recovered outside of the acceptance limits. The LCS was recovered within the required acceptance limits; therefore, this demonstrates a matrix effect and data quality is not impacted.

Manual Integration Summary

Arcadis U.S., Inc.

Lot Number: ZB09009

Project Name: RACER Lansing PFAS Delineation

Project Number: 30171056

Where applicable, analytes for which manual integration occurred have been flagged with the following:

Qualifier	Technical Justification	Qualifier	Technical Justification	Qualifier	Technical Justification
M-01	Split peak	M-07	Low fit	M-13	Error
M-02	Peak tailing	M-08	Peak not found	M-14	Baseline
M-03	Incorrect auto integration	M-09	Analyte not Identified by the Data System	M-15	Other
M-04	Poor chromatography	M-10	Analyte misidentified by the Data System	M-16	Retention time shift
M-05	Manually assigned peak	M-11	Invalid integration	M-17	Shouldering
M-06	Wrong isomer	M-12	Wrong peak		

A summary of instances where manual integration occurred is included below:

Method	Sample	Run Number	Parameter	Qualifier
PFAS by ID SOP	ZB09009-001	1	Perfluoro-1-butanesulfonic acid (PFBS)	M-03
PFAS by ID SOP	ZB09009-001	1	Perfluorohexanesulfonic acid (PFHxS)	M-03
PFAS by ID SOP	ZB09009-001	1	Perfluoro-n-butanoic acid (PFBA)	M-03
PFAS by ID SOP	ZB09009-001	1	Perfluoro-n-heptanoic acid (PFHpA)	M-03
PFAS by ID SOP	ZB09009-001	1	Perfluoro-n-octanoic acid (PFOA)	M-03
PFAS by ID SOP	ZB09009-001	1	Perfluorooctanesulfonic acid (PFOS)	M-03
PFAS by ID SOP	ZB09009-002	1	Perfluoro-1-butanesulfonic acid (PFBS)	M-03
PFAS by ID SOP	ZB09009-002	1	Perfluorohexanesulfonic acid (PFHxS)	M-03
PFAS by ID SOP	ZB09009-002	1	Perfluoro-n-heptanoic acid (PFHpA)	M-03
PFAS by ID SOP	ZB09009-002	1	Perfluoro-n-hexanoic acid (PFHxA)	M-03
PFAS by ID SOP	ZB09009-002	1	Perfluoro-n-octanoic acid (PFOA)	M-03
PFAS by ID SOP	ZB09009-002	1	Perfluorooctanesulfonic acid (PFOS)	M-03
PFAS by ID SOP	ZB09009-003	1	Perfluorohexanesulfonic acid (PFHxS)	M-03
PFAS by ID SOP	ZB09009-003	1	Perfluoro-n-butanoic acid (PFBA)	M-03
PFAS by ID SOP	ZB09009-003	1	Perfluoro-n-heptanoic acid (PFHpA)	M-03
PFAS by ID SOP	ZB09009-003	1	Perfluoro-n-hexanoic acid (PFHxA)	M-03
PFAS by ID SOP	ZB09009-003	1	Perfluoro-n-octanoic acid (PFOA)	M-03
PFAS by ID SOP	ZB09009-003	1	Perfluoro-n-pentanoic acid (PFPeA)	M-03
PFAS by ID SOP	ZB09009-003	1	Perfluorooctanesulfonic acid (PFOS)	M-03
PFAS by ID SOP	ZB09009-004	1	N-ethylperfluoro-1-	M-03
PFAS by ID SOP	ZB09009-004	1	Perfluoro-1-butanesulfonic acid (PFBS)	M-03
PFAS by ID SOP	ZB09009-004	1	Perfluorohexanesulfonic acid (PFHxS)	M-03
PFAS by ID SOP	ZB09009-004	1	Perfluoro-n-butanoic acid (PFBA)	M-03
PFAS by ID SOP	ZB09009-004	1	Perfluoro-n-heptanoic acid (PFHpA)	M-03
PFAS by ID SOP	ZB09009-004	1	Perfluoro-n-hexanoic acid (PFHxA)	M-03
PFAS by ID SOP	ZB09009-004	1	Perfluoro-n-nonanoic acid (PFNA)	M-03
PFAS by ID SOP	ZB09009-004	1	Perfluoro-n-octanoic acid (PFOA)	M-03
PFAS by ID SOP	ZB09009-004	1	Perfluoro-n-pentanoic acid (PFPeA)	M-03
PFAS by ID SOP	ZB09009-004	1	Perfluorooctanesulfonic acid (PFOS)	M-03
PFAS by ID SOP	ZB09009-005	1	Perfluoro-1-butanesulfonic acid (PFBS)	M-03
PFAS by ID SOP	ZB09009-005	1	Perfluoro-n-butanoic acid (PFBA)	M-03
PFAS by ID SOP	ZB09009-005	1	Perfluoro-n-heptanoic acid (PFHpA)	M-03
PFAS by ID SOP	ZB09009-005	1	Perfluoro-n-hexanoic acid (PFHxA)	M-03
PFAS by ID SOP	ZB09009-005	1	Perfluoro-n-pentanoic acid (PFPeA)	M-03
PFAS by ID SOP	ZB09009-005	1	Perfluorooctanesulfonic acid (PFOS)	M-03
PFAS by ID SOP	ZB09009-006	1	Perfluoro-1-butanesulfonic acid (PFBS)	M-03
PFAS by ID SOP	ZB09009-006	1	Perfluorohexanesulfonic acid (PFHxS)	M-03

Manual Integration Summary

Arcadis U.S., Inc.

Lot Number: ZB09009

Project Name: RACER Lansing PFAS Delineation

Project Number: 30171056

Where applicable, analytes for which manual integration occurred have been flagged with the following:

Qualifier	Technical Justification	Qualifier	Technical Justification	Qualifier	Technical Justification
M-01	Split peak	M-07	Low fit	M-13	Error
M-02	Peak tailing	M-08	Peak not found	M-14	Baseline
M-03	Incorrect auto integration	M-09	Analyte not Identified by the Data System	M-15	Other
M-04	Poor chromatography	M-10	Analyte misidentified by the Data System	M-16	Retention time shift
M-05	Manually assigned peak	M-11	Invalid integration	M-17	Shouldering
M-06	Wrong isomer	M-12	Wrong peak		

A summary of instances where manual integration occurred is included below:

Method	Sample	Run Number	Parameter	Qualifier
PFAS by ID SOP	ZB09009-006	1	Perfluoro-n-butanoic acid (PFBA)	M-03
PFAS by ID SOP	ZB09009-006	1	Perfluorooctanesulfonic acid (PFOS)	M-03
PFAS by ID SOP	ZB09009-007	1	Perfluorohexanesulfonic acid (PFHxS)	M-03
PFAS by ID SOP	ZB09009-007	1	Perfluoro-n-butanoic acid (PFBA)	M-03
PFAS by ID SOP	ZB09009-007	1	Perfluoro-n-decanoic acid (PFDA)	M-03
PFAS by ID SOP	ZB09009-007	1	Perfluoro-n-heptanoic acid (PFHpA)	M-03
PFAS by ID SOP	ZB09009-007	1	Perfluoro-n-nonanoic acid (PFNA)	M-03
PFAS by ID SOP	ZB09009-007	1	Perfluoro-n-octanoic acid (PFOA)	M-03
PFAS by ID SOP	ZB09009-007	1	Perfluoro-n-pentanoic acid (PFPeA)	M-03
PFAS by ID SOP	ZB09009-007	1	Perfluorooctanesulfonic acid (PFOS)	M-03
PFAS by ID SOP	ZB09009-001MS	1	1H, 1H, 2H, 2H-perfluorodecane	M-03
PFAS by ID SOP	ZB09009-001MD	1	1H, 1H, 2H, 2H-perfluorodecane	M-03
PFAS by ID SOP	ZQ97495-002	1	1H, 1H, 2H, 2H-perfluorooctane sulfonic	M-03
PFAS by ID SOP	ZB09009-001MS	1	1H, 1H, 2H, 2H-perfluorooctane sulfonic	M-03
PFAS by ID SOP	ZB09009-001MD	1	1H, 1H, 2H, 2H-perfluorooctane sulfonic	M-03
PFAS by ID SOP	ZQ97495-002	1	1H,1H,2H,2H-perfluorohexane sulfonic	M-03
PFAS by ID SOP	ZB09009-001MS	1	1H,1H,2H,2H-perfluorohexane sulfonic	M-03
PFAS by ID SOP	ZQ97495-002	1	N-ethylperfluoro-1-	M-03
PFAS by ID SOP	ZB09009-001MS	1	N-ethylperfluoro-1-	M-03
PFAS by ID SOP	ZB09009-001MD	1	N-ethylperfluoro-1-	M-03
PFAS by ID SOP	ZQ97495-002	1	N-methylperfluoro-1-	M-03
PFAS by ID SOP	ZB09009-001MS	1	Perfluoro-1-heptanesulfonic acid	M-03
PFAS by ID SOP	ZB09009-001MD	1	Perfluoro-1-octanesulfonamide (PFOSA)	M-03
PFAS by ID SOP	ZB09009-001MS	1	Perfluoro-n-butanoic acid (PFBA)	M-03
PFAS by ID SOP	ZB09009-001MD	1	Perfluoro-n-butanoic acid (PFBA)	M-03
PFAS by ID SOP	ZB09009-001MS	1	Perfluoro-n-heptanoic acid (PFHpA)	M-03
PFAS by ID SOP	ZB09009-001MD	1	Perfluoro-n-hexanoic acid (PFHxA)	M-03
PFAS by ID SOP	ZB09009-001MS	1	Perfluoro-n-octanoic acid (PFOA)	M-03
PFAS by ID SOP	ZB09009-001MD	1	Perfluoro-n-octanoic acid (PFOA)	M-03
PFAS by ID SOP	ZB09009-001MS	1	Perfluorooctanesulfonic acid (PFOS)	M-03
PFAS by ID SOP	ZB09009-001MD	1	Perfluorooctanesulfonic acid (PFOS)	M-03
PFAS by ID SOP	ZQ97495-002	1	13C2_8:2FTS	M-03

If you have any questions regarding this report, please contact the Pace Project Manager listed on the cover page.

Sample Summary

Arcadis U.S., Inc.

Lot Number: ZB09009

Project Name: RACER Lansing PFAS Delineation

Project Number: 30171056

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	MichAve-MH-3_020824	Aqueous	02/08/2024 0905	02/09/2024
002	Verlinden-MH-5_020824	Aqueous	02/08/2024 0925	02/09/2024
003	Osborn-MH-1_020824	Aqueous	02/08/2024 1010	02/09/2024
004	Dup-01_020824	Aqueous	02/08/2024	02/09/2024
005	P3-MH-284_020824	Aqueous	02/08/2024 1105	02/09/2024
006	P2-MH-W_020824	Aqueous	02/08/2024 1155	02/09/2024
007	P2-MH-2_020824	Aqueous	02/08/2024 1230	02/09/2024
008	FB-01_020824	Aqueous	02/08/2024 1252	02/09/2024
009	EB-01_020824	Aqueous	02/08/2024 1255	02/09/2024

(9 samples)

Detection Summary

Arcadis U.S., Inc.

Lot Number: ZB09009

Project Name: RACER Lansing PFAS Delineation

Project Number: 30171056

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	MichAve-MH-3_020824	Aqueous	PFBS	PFAS by ID	2.4	JM-03	ng/L	9
001	MichAve-MH-3_020824	Aqueous	PFHxS	PFAS by ID	1.9	JM-03	ng/L	9
001	MichAve-MH-3_020824	Aqueous	PFBA	PFAS by ID	5.2	M-03	ng/L	9
001	MichAve-MH-3_020824	Aqueous	PFHpA	PFAS by ID	1.2	JM-03	ng/L	9
001	MichAve-MH-3_020824	Aqueous	PFHxA	PFAS by ID	1.7	J	ng/L	9
001	MichAve-MH-3_020824	Aqueous	PFOA	PFAS by ID	2.6	JM-03	ng/L	9
001	MichAve-MH-3_020824	Aqueous	PFPeA	PFAS by ID	2.4	J	ng/L	9
001	MichAve-MH-3_020824	Aqueous	PFOS	PFAS by ID	1.3	JM-03	ng/L	9
002	Verlinden-MH-5_020824	Aqueous	PFBS	PFAS by ID	3.7	JM-03	ng/L	11
002	Verlinden-MH-5_020824	Aqueous	PFHxS	PFAS by ID	1.8	JM-03	ng/L	11
002	Verlinden-MH-5_020824	Aqueous	PFBA	PFAS by ID	11		ng/L	11
002	Verlinden-MH-5_020824	Aqueous	PFHpA	PFAS by ID	15	M-03	ng/L	11
002	Verlinden-MH-5_020824	Aqueous	PFHxA	PFAS by ID	19	M-03	ng/L	11
002	Verlinden-MH-5_020824	Aqueous	PFNA	PFAS by ID	2.7	J	ng/L	11
002	Verlinden-MH-5_020824	Aqueous	PFOA	PFAS by ID	27	M-03	ng/L	11
002	Verlinden-MH-5_020824	Aqueous	PFPeA	PFAS by ID	18		ng/L	11
002	Verlinden-MH-5_020824	Aqueous	PFOS	PFAS by ID	8.6	M-03	ng/L	11
003	Osborn-MH-1_020824	Aqueous	PFHxS	PFAS by ID	2.5	JM-03	ng/L	13
003	Osborn-MH-1_020824	Aqueous	PFBA	PFAS by ID	14	M-03	ng/L	13
003	Osborn-MH-1_020824	Aqueous	PFDA	PFAS by ID	6.1		ng/L	13
003	Osborn-MH-1_020824	Aqueous	PFHpA	PFAS by ID	14	M-03	ng/L	13
003	Osborn-MH-1_020824	Aqueous	PFHxA	PFAS by ID	17	M-03	ng/L	13
003	Osborn-MH-1_020824	Aqueous	PFNA	PFAS by ID	4.5		ng/L	13
003	Osborn-MH-1_020824	Aqueous	PFOA	PFAS by ID	24	M-03	ng/L	13
003	Osborn-MH-1_020824	Aqueous	PFPeA	PFAS by ID	16	M-03	ng/L	13
003	Osborn-MH-1_020824	Aqueous	PFOS	PFAS by ID	16	M-03	ng/L	13
004	Dup-01_020824	Aqueous	PFBS	PFAS by ID	2.4	JM-03	ng/L	15
004	Dup-01_020824	Aqueous	PFHxS	PFAS by ID	2.8	JM-03	ng/L	15
004	Dup-01_020824	Aqueous	PFBA	PFAS by ID	13	M-03	ng/L	15
004	Dup-01_020824	Aqueous	PFDA	PFAS by ID	5.9		ng/L	15
004	Dup-01_020824	Aqueous	PFHpA	PFAS by ID	14	M-03	ng/L	15
004	Dup-01_020824	Aqueous	PFHxA	PFAS by ID	16	M-03	ng/L	15
004	Dup-01_020824	Aqueous	PFNA	PFAS by ID	4.0	M-03	ng/L	15
004	Dup-01_020824	Aqueous	PFOA	PFAS by ID	24	M-03	ng/L	15
004	Dup-01_020824	Aqueous	PFPeA	PFAS by ID	17	M-03	ng/L	15
004	Dup-01_020824	Aqueous	PFOS	PFAS by ID	18	M-03	ng/L	15
005	P3-MH-284_020824	Aqueous	PFBS	PFAS by ID	2.8	JM-03	ng/L	17
005	P3-MH-284_020824	Aqueous	PFBA	PFAS by ID	6.5	M-03	ng/L	17
005	P3-MH-284_020824	Aqueous	PFHpA	PFAS by ID	1.1	JM-03	ng/L	17
005	P3-MH-284_020824	Aqueous	PFHxA	PFAS by ID	2.7	JM-03	ng/L	17
005	P3-MH-284_020824	Aqueous	PFPeA	PFAS by ID	2.5	JM-03	ng/L	17
005	P3-MH-284_020824	Aqueous	PFOS	PFAS by ID	6.2	M-03	ng/L	17
006	P2-MH-W_020824	Aqueous	PFBS	PFAS by ID	1.0	JM-03	ng/L	19

Detection Summary (Continued)

Lot Number: ZB09009

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
006	P2-MH-W_020824	Aqueous	PFHxS	PFAS by ID	1.8	JM-03	ng/L	19
006	P2-MH-W_020824	Aqueous	PFBA	PFAS by ID	3.7	JM-03	ng/L	19
006	P2-MH-W_020824	Aqueous	PFPeA	PFAS by ID	1.0	J	ng/L	19
007	P2-MH-2_020824	Aqueous	PFHxS	PFAS by ID	3.1	JM-03	ng/L	21
007	P2-MH-2_020824	Aqueous	PFBA	PFAS by ID	9.2	M-03	ng/L	21
007	P2-MH-2_020824	Aqueous	PFHpA	PFAS by ID	6.1	M-03	ng/L	21
007	P2-MH-2_020824	Aqueous	PFNA	PFAS by ID	1.3	JM-03	ng/L	21
007	P2-MH-2_020824	Aqueous	PFOA	PFAS by ID	11	M-03	ng/L	21
007	P2-MH-2_020824	Aqueous	PFPeA	PFAS by ID	5.9	M-03	ng/L	21
007	P2-MH-2_020824	Aqueous	PFOS	PFAS by ID	10	M-03	ng/L	21

(53 detections)

PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZB09009-001**

Description: **MichAve-MH-3_020824** Matrix: **Aqueous**

Date Sampled: **02/08/2024 0905** Project Name: **RACER Lansing PFAS**

Date Received: **02/09/2024** Project Number: **30171056**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/29/2024 1311	BWS	02/28/2024 2027	97495

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		8.4	2.1	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		8.4	2.1	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		8.4	2.1	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		8.4	2.1	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	8.4	2.1	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		8.4	2.1	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		8.4	2.1	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		8.4	2.1	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		8.4	2.1	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**2.4**	**JM-03**	**4.2**	**1.1**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND	S	4.2	1.1	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**1.9**	**JM-03**	**4.2**	**1.1**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**5.2**	**M-03**	**4.2**	**1.1**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**1.2**	**JM-03**	**4.2**	**1.1**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**1.7**	**J**	**4.2**	**1.1**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**2.6**	**JM-03**	**4.2**	**1.1**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**2.4**	**J**	**4.2**	**1.1**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**1.3**	**JM-03**	**4.2**	**1.1**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	203	50-150
13C2_6:2FTS		138	50-150
13C2_8:2FTS		110	50-150
13C2_PFDoA		84	50-150
13C2_PFTeDA		96	50-150
13C3_PFBS		92	50-150
13C3_PFHxS		91	50-150
13C3-HFPO-DA		89	50-150
13C4_PFBA		57	50-150
13C4_PFHpA		88	50-150
13C5_PFHxA		96	50-150
13C5_PFPeA		96	50-150
13C6_PFDA		94	50-150
13C7_PFUdA		91	50-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZB09009-001**

Description: **MichAve-MH-3_020824** Matrix: **Aqueous**

Date Sampled: **02/08/2024 0905** Project Name: **RACER Lansing PFAS**

Date Received: **02/09/2024** Project Number: **30171056**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		107	50-150
13C8_PFOS		92	50-150
13C8_PFOSA		93	50-150
13C9_PFNA		96	50-150
d5-EtFOSAA		98	50-150
d3-MeFOSAA		86	50-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZB09009-002**

Description: **Verlinden-MH-5_020824** Matrix: **Aqueous**

Date Sampled: **02/08/2024 0925** Project Name: **RACER Lansing PFAS**

Date Received: **02/09/2024** Project Number: **30171056**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/29/2024 1343	BWS	02/28/2024 2027	97495

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		8.3	2.1	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		8.3	2.1	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		8.3	2.1	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		8.3	2.1	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	8.3	2.1	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		8.3	2.1	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		8.3	2.1	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		8.3	2.1	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		8.3	2.1	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**3.7**	**JM-03**	**4.1**	**1.0**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**1.8**	**JM-03**	**4.1**	**1.0**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**11**		**4.1**	**1.0**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**15**	**M-03**	**4.1**	**1.0**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**19**	**M-03**	**4.1**	**1.0**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**2.7**	**J**	**4.1**	**1.0**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**27**	**M-03**	**4.1**	**1.0**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**18**		**4.1**	**1.0**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**8.6**	**M-03**	**4.1**	**1.0**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	202	50-150
13C2_6:2FTS		147	50-150
13C2_8:2FTS		95	50-150
13C2_PFDoA		85	50-150
13C2_PFTeDA		95	50-150
13C3_PFBS		88	50-150
13C3_PFHxS		86	50-150
13C3-HFPO-DA		95	50-150
13C4_PFBA		66	50-150
13C4_PFHpA		82	50-150
13C5_PFHxA		89	50-150
13C5_PFPeA		89	50-150
13C6_PFDA		93	50-150
13C7_PFUdA		80	50-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZB09009-002**

Description: **Verlinden-MH-5_020824** Matrix: **Aqueous**

Date Sampled: **02/08/2024 0925** Project Name: **RACER Lansing PFAS**

Date Received: **02/09/2024** Project Number: **30171056**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		101	50-150
13C8_PFOS		86	50-150
13C8_PFOSA		94	50-150
13C9_PFNA		91	50-150
d5-EtFOSAA		91	50-150
d3-MeFOSAA		91	50-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZB09009-003**

Description: **Osborn-MH-1_020824** Matrix: **Aqueous**

Date Sampled: **02/08/2024 1010** Project Name: **RACER Lansing PFAS**

Date Received: **02/09/2024** Project Number: **30171056**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/29/2024 1354	BWS	02/28/2024 2027	97495

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		8.6	2.1	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		8.6	2.1	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND	Q	8.6	2.1	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	8.6	2.1	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	8.6	2.1	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		8.6	2.1	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		8.6	2.1	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		8.6	2.1	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		8.6	2.1	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		4.3	1.1	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		4.3	1.1	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		4.3	1.1	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		4.3	1.1	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		4.3	1.1	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		4.3	1.1	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**2.5**	**JM-03**	**4.3**	**1.1**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**14**	**M-03**	**4.3**	**1.1**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	**335-76-2**	**PFAS by ID SOP**	**6.1**		**4.3**	**1.1**	**ng/L**	**1**
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		4.3	1.1	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**14**	**M-03**	**4.3**	**1.1**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**17**	**M-03**	**4.3**	**1.1**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**4.5**		**4.3**	**1.1**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**24**	**M-03**	**4.3**	**1.1**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**16**	**M-03**	**4.3**	**1.1**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		4.3	1.1	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		4.3	1.1	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		4.3	1.1	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**16**	**M-03**	**4.3**	**1.1**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	231	50-150
13C2_6:2FTS	N	246	50-150
13C2_8:2FTS	N	175	50-150
13C2_PFDoA		91	50-150
13C2_PFTeDA		97	50-150
13C3_PFBS		83	50-150
13C3_PFHxS		87	50-150
13C3-HFPO-DA		74	50-150
13C4_PFBA		61	50-150
13C4_PFHpA		72	50-150
13C5_PFHxA		82	50-150
13C5_PFPeA		88	50-150
13C6_PFDA		92	50-150
13C7_PFUdA		94	50-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZB09009-003**

Description: **Osborn-MH-1_020824** Matrix: **Aqueous**

Date Sampled: **02/08/2024 1010** Project Name: **RACER Lansing PFAS**

Date Received: **02/09/2024** Project Number: **30171056**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		97	50-150
13C8_PFOS		93	50-150
13C8_PFOSA		96	50-150
13C9_PFNA		97	50-150
d5-EtFOSAA		131	50-150
d3-MeFOSAA		114	50-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZB09009-004**

Description: **Dup-01_020824** Matrix: **Aqueous**

Date Sampled: **02/08/2024** Project Name: **RACER Lansing PFAS**

Date Received: **02/09/2024** Project Number: **30171056**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/29/2024 1404	BWS	02/28/2024 2027	97495

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.9	2.0	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.9	2.0	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND	Q	7.9	2.0	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.9	2.0	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.9	2.0	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.9	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.9	2.0	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND	M-03	7.9	2.0	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.9	2.0	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**2.4**	**JM-03**	**3.9**	**0.98**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.9	0.98	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.9	0.98	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.9	0.98	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.9	0.98	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.9	0.98	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**2.8**	**JM-03**	**3.9**	**0.98**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**13**	**M-03**	**3.9**	**0.98**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	**335-76-2**	**PFAS by ID SOP**	**5.9**		**3.9**	**0.98**	**ng/L**	**1**
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.9	0.98	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**14**	**M-03**	**3.9**	**0.98**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**16**	**M-03**	**3.9**	**0.98**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**4.0**	**M-03**	**3.9**	**0.98**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**24**	**M-03**	**3.9**	**0.98**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**17**	**M-03**	**3.9**	**0.98**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.9	0.98	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.9	0.98	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.9	0.98	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**18**	**M-03**	**3.9**	**0.98**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	261	50-150
13C2_6:2FTS	N	238	50-150
13C2_8:2FTS	N	176	50-150
13C2_PFDoA		93	50-150
13C2_PFTeDA		77	50-150
13C3_PFBS		79	50-150
13C3_PFHxS		85	50-150
13C3-HFPO-DA		82	50-150
13C4_PFBA		52	50-150
13C4_PFHpA		78	50-150
13C5_PFHxA		85	50-150
13C5_PFPeA		83	50-150
13C6_PFDA		94	50-150
13C7_PFUdA		97	50-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZB09009-004**

Description: **Dup-01_020824** Matrix: **Aqueous**

Date Sampled: **02/08/2024** Project Name: **RACER Lansing PFAS**

Date Received: **02/09/2024** Project Number: **30171056**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		100	50-150
13C8_PFOS		82	50-150
13C8_PFOSA		88	50-150
13C9_PFNA		105	50-150
d5-EtFOSAA		141	50-150
d3-MeFOSAA		115	50-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZB09009-005**

Description: **P3-MH-284_020824** Matrix: **Aqueous**

Date Sampled: **02/08/2024 1105** Project Name: **RACER Lansing PFAS**

Date Received: **02/09/2024** Project Number: **30171056**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/29/2024 1415	BWS	02/28/2024 2027	97495

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		8.2	2.0	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		8.2	2.0	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		8.2	2.0	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		8.2	2.0	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	8.2	2.0	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		8.2	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		8.2	2.0	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		8.2	2.0	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		8.2	2.0	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**2.8**	**JM-03**	**4.1**	**1.0**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**6.5**	**M-03**	**4.1**	**1.0**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**1.1**	**JM-03**	**4.1**	**1.0**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**2.7**	**JM-03**	**4.1**	**1.0**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**2.5**	**JM-03**	**4.1**	**1.0**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**6.2**	**M-03**	**4.1**	**1.0**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	151	50-150
13C2_6:2FTS		104	50-150
13C2_8:2FTS		83	50-150
13C2_PFDoA		67	50-150
13C2_PFTeDA		76	50-150
13C3_PFBS		74	50-150
13C3_PFHxS		71	50-150
13C3-HFPO-DA		89	50-150
13C4_PFBA		64	50-150
13C4_PFHpA		70	50-150
13C5_PFHxA		78	50-150
13C5_PFPeA		85	50-150
13C6_PFDA		71	50-150
13C7_PFUdA		77	50-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZB09009-005**

Description: **P3-MH-284_020824** Matrix: **Aqueous**

Date Sampled: **02/08/2024 1105** Project Name: **RACER Lansing PFAS**

Date Received: **02/09/2024** Project Number: **30171056**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		76	50-150
13C8_PFOS		73	50-150
13C8_PFOSA		73	50-150
13C9_PFNA		71	50-150
d5-EtFOSAA		80	50-150
d3-MeFOSAA		72	50-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZB09009-006**

Description: **P2-MH-W_020824** Matrix: **Aqueous**

Date Sampled: **02/08/2024 1155** Project Name: **RACER Lansing PFAS**

Date Received: **02/09/2024** Project Number: **30171056**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/29/2024 1447	BWS	02/28/2024 2027	97495

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		8.4	2.1	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		8.4	2.1	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		8.4	2.1	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		8.4	2.1	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	8.4	2.1	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		8.4	2.1	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		8.4	2.1	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		8.4	2.1	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		8.4	2.1	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**1.0**	**JM-03**	**4.2**	**1.0**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		4.2	1.0	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		4.2	1.0	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		4.2	1.0	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		4.2	1.0	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		4.2	1.0	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**1.8**	**JM-03**	**4.2**	**1.0**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**3.7**	**JM-03**	**4.2**	**1.0**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		4.2	1.0	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		4.2	1.0	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		4.2	1.0	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		4.2	1.0	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		4.2	1.0	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		4.2	1.0	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**1.0**	**J**	**4.2**	**1.0**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		4.2	1.0	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		4.2	1.0	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		4.2	1.0	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND	M-03	4.2	1.0	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	166	50-150
13C2_6:2FTS		102	50-150
13C2_8:2FTS		75	50-150
13C2_PFDoA		75	50-150
13C2_PFTeDA		87	50-150
13C3_PFBS		82	50-150
13C3_PFHxS		86	50-150
13C3-HFPO-DA		89	50-150
13C4_PFBA		59	50-150
13C4_PFHpA		83	50-150
13C5_PFHxA		76	50-150
13C5_PFPeA		90	50-150
13C6_PFDA		77	50-150
13C7_PFUdA		78	50-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZB09009-006**

Description: **P2-MH-W_020824** Matrix: **Aqueous**

Date Sampled: **02/08/2024 1155** Project Name: **RACER Lansing PFAS**

Date Received: **02/09/2024** Project Number: **30171056**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		94	50-150
13C8_PFOS		79	50-150
13C8_PFOSA		77	50-150
13C9_PFNA		85	50-150
d5-EtFOSAA		89	50-150
d3-MeFOSAA		79	50-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZB09009-007**

Description: **P2-MH-2_020824** Matrix: **Aqueous**

Date Sampled: **02/08/2024 1230** Project Name: **RACER Lansing PFAS**

Date Received: **02/09/2024** Project Number: **30171056**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/29/2024 1457	BWS	02/28/2024 2027	97495

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		9.1	2.3	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		9.1	2.3	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		9.1	2.3	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	9.1	2.3	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	9.1	2.3	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		9.1	2.3	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		9.1	2.3	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		9.1	2.3	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		9.1	2.3	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		4.6	1.1	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		4.6	1.1	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		4.6	1.1	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		4.6	1.1	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		4.6	1.1	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		4.6	1.1	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**3.1**	**JM-03**	**4.6**	**1.1**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**9.2**	**M-03**	**4.6**	**1.1**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND	M-03	4.6	1.1	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		4.6	1.1	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**6.1**	**M-03**	**4.6**	**1.1**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		4.6	1.1	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**1.3**	**JM-03**	**4.6**	**1.1**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**11**	**M-03**	**4.6**	**1.1**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**5.9**	**M-03**	**4.6**	**1.1**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		4.6	1.1	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		4.6	1.1	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		4.6	1.1	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**10**	**M-03**	**4.6**	**1.1**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	238	50-150
13C2_6:2FTS	N	199	50-150
13C2_8:2FTS		135	50-150
13C2_PFDoA		86	50-150
13C2_PFTeDA		84	50-150
13C3_PFBS		83	50-150
13C3_PFHxS		80	50-150
13C3-HFPO-DA		77	50-150
13C4_PFBA		55	50-150
13C4_PFHpA		71	50-150
13C5_PFHxA		81	50-150
13C5_PFPeA		80	50-150
13C6_PFDA		94	50-150
13C7_PFUdA		83	50-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZB09009-007**

Description: **P2-MH-2_020824** Matrix: **Aqueous**

Date Sampled: **02/08/2024 1230** Project Name: **RACER Lansing PFAS**

Date Received: **02/09/2024** Project Number: **30171056**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		97	50-150
13C8_PFOS		85	50-150
13C8_PFOSA		85	50-150
13C9_PFNA		95	50-150
d5-EtFOSAA		106	50-150
d3-MeFOSAA		97	50-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZB09009-008**

Description: **FB-01_020824** Matrix: **Aqueous**

Date Sampled: **02/08/2024 1252** Project Name: **RACER Lansing PFAS**

Date Received: **02/09/2024** Project Number: **30171056**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/29/2024 1508	BWS	02/28/2024 2027	97495

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.7	1.9	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.7	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.7	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.7	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.7	1.9	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.7	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.7	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.7	1.9	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.7	1.9	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.8	0.96	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.8	0.96	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.8	0.96	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.8	0.96	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.8	0.96	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.8	0.96	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.8	0.96	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		3.8	0.96	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.8	0.96	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.8	0.96	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.8	0.96	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.8	0.96	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.8	0.96	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.8	0.96	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.8	0.96	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.8	0.96	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.8	0.96	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.8	0.96	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.8	0.96	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		88	50-150
13C2_6:2FTS		104	50-150
13C2_8:2FTS		88	50-150
13C2_PFDoA		83	50-150
13C2_PFTeDA		96	50-150
13C3_PFBS		87	50-150
13C3_PFHxS		84	50-150
13C3-HFPO-DA		98	50-150
13C4_PFBA		87	50-150
13C4_PFHpA		84	50-150
13C5_PFHxA		90	50-150
13C5_PFPeA		92	50-150
13C6_PFDA		81	50-150
13C7_PFUdA		85	50-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZB09009-008**

Description: **FB-01_020824** Matrix: **Aqueous**

Date Sampled: **02/08/2024 1252** Project Name: **RACER Lansing PFAS**

Date Received: **02/09/2024** Project Number: **30171056**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		102	50-150
13C8_PFOS		90	50-150
13C8_PFOSA		87	50-150
13C9_PFNA		88	50-150
d5-EtFOSAA		99	50-150
d3-MeFOSAA		90	50-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZB09009-009**

Description: **EB-01_020824** Matrix: **Aqueous**

Date Sampled: **02/08/2024 1255** Project Name: **RACER Lansing PFAS**

Date Received: **02/09/2024** Project Number: **30171056**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	02/29/2024 1519	BWS	02/28/2024 2027	97495

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.8	2.0	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.8	2.0	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.8	2.0	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.8	2.0	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.8	2.0	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.8	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.8	2.0	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.8	2.0	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.8	2.0	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.9	0.98	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.9	0.98	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.9	0.98	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.9	0.98	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.9	0.98	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.9	0.98	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.9	0.98	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		3.9	0.98	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.9	0.98	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.9	0.98	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.9	0.98	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.9	0.98	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.9	0.98	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.9	0.98	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.9	0.98	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.9	0.98	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.9	0.98	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.9	0.98	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.9	0.98	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		106	50-150
13C2_6:2FTS		117	50-150
13C2_8:2FTS		89	50-150
13C2_PFDoA		84	50-150
13C2_PFTeDA		108	50-150
13C3_PFBS		100	50-150
13C3_PFHxS		95	50-150
13C3-HFPO-DA		111	50-150
13C4_PFBA		77	50-150
13C4_PFHpA		94	50-150
13C5_PFHxA		95	50-150
13C5_PFPeA		102	50-150
13C6_PFDA		95	50-150
13C7_PFUdA		82	50-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZB09009-009**

Description: **EB-01_020824** Matrix: **Aqueous**

Date Sampled: **02/08/2024 1255** Project Name: **RACER Lansing PFAS**

Date Received: **02/09/2024** Project Number: **30171056**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		106	50-150
13C8_PFOS		92	50-150
13C8_PFOSA		89	50-150
13C9_PFNA		93	50-150
d5-EtFOSAA		100	50-150
d3-MeFOSAA		93	50-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
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QC Summary

PFAS by LC/MS/MS - MB

Sample ID: ZQ97495-001
Batch: 97495
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 02/28/2024 2027

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
9Cl-PF3ONS	ND		1	8.0	2.0	ng/L	02/29/2024 1136
11Cl-PF3OUdS	ND		1	8.0	2.0	ng/L	02/29/2024 1136
8:2 FTS	ND		1	8.0	2.0	ng/L	02/29/2024 1136
6:2 FTS	ND		1	8.0	2.0	ng/L	02/29/2024 1136
4:2 FTS	ND		1	8.0	2.0	ng/L	02/29/2024 1136
GenX	ND		1	8.0	2.0	ng/L	02/29/2024 1136
ADONA	ND		1	8.0	2.0	ng/L	02/29/2024 1136
EtFOSAA	ND		1	8.0	2.0	ng/L	02/29/2024 1136
MeFOSAA	ND		1	8.0	2.0	ng/L	02/29/2024 1136
PFBS	ND		1	4.0	1.0	ng/L	02/29/2024 1136
PFDS	ND		1	4.0	1.0	ng/L	02/29/2024 1136
PFHpS	ND		1	4.0	1.0	ng/L	02/29/2024 1136
PFNS	ND		1	4.0	1.0	ng/L	02/29/2024 1136
PFOSA	ND		1	4.0	1.0	ng/L	02/29/2024 1136
PFPeS	ND		1	4.0	1.0	ng/L	02/29/2024 1136
PFHxS	ND		1	4.0	1.0	ng/L	02/29/2024 1136
PFBA	ND		1	4.0	1.0	ng/L	02/29/2024 1136
PFDA	ND		1	4.0	1.0	ng/L	02/29/2024 1136
PFDoA	ND		1	4.0	1.0	ng/L	02/29/2024 1136
PFHpA	ND		1	4.0	1.0	ng/L	02/29/2024 1136
PFHxA	ND		1	4.0	1.0	ng/L	02/29/2024 1136
PFNA	ND		1	4.0	1.0	ng/L	02/29/2024 1136
PFOA	ND		1	4.0	1.0	ng/L	02/29/2024 1136
PFPeA	ND		1	4.0	1.0	ng/L	02/29/2024 1136
PFTeDA	ND		1	4.0	1.0	ng/L	02/29/2024 1136
PFTrDA	ND		1	4.0	1.0	ng/L	02/29/2024 1136
PFUdA	ND		1	4.0	1.0	ng/L	02/29/2024 1136
PFOS	ND		1	4.0	1.0	ng/L	02/29/2024 1136

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		87	50-150
13C2_6:2FTS		85	50-150
13C2_8:2FTS		80	50-150
13C2_PFDoA		71	50-150
13C2_PFTeDA		83	50-150
13C3_PFBS		75	50-150
13C3_PFHxS		82	50-150
13C3-HFPO-DA		88	50-150
13C4_PFBA		74	50-150
13C4_PFHpA		77	50-150
13C5_PFHxA		67	50-150
13C5_PFPeA		85	50-150

LOQ = Limit of Quantitation
DL = Detection Limit

ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria

N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: ZQ97495-001
Batch: 97495
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 02/28/2024 2027

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		83	50-150
13C7_PFUdA		75	50-150
13C8_PFOA		86	50-150
13C8_PFOS		82	50-150
13C8_PFOSA		81	50-150
13C9_PFNA		87	50-150
d5-EtFOSAA		89	50-150
d3-MeFOSAA		82	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ97495-002
Batch: 97495
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 02/28/2024 2027

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	15		1	104	50-150	02/29/2024 1147
11Cl-PF3OUdS	15	16		1	103	50-150	02/29/2024 1147
8:2 FTS	15	19		1	127	67-138	02/29/2024 1147
6:2 FTS	15	17	M-03	1	111	64-140	02/29/2024 1147
4:2 FTS	15	20	M-03	1	131	63-143	02/29/2024 1147
GenX	32	36		1	113	50-150	02/29/2024 1147
ADONA	15	17		1	110	50-150	02/29/2024 1147
EtFOSAA	16	17	M-03	1	104	61-135	02/29/2024 1147
MeFOSAA	16	16	M-03	1	102	65-136	02/29/2024 1147
PFBS	14	15		1	108	72-130	02/29/2024 1147
PFDS	15	17		1	107	53-142	02/29/2024 1147
PFHpS	15	15		1	101	69-134	02/29/2024 1147
PFNS	15	16		1	105	69-127	02/29/2024 1147
PFOSA	16	17		1	108	67-137	02/29/2024 1147
PFPeS	15	17		1	115	71-127	02/29/2024 1147
PFHxS	15	15		1	102	68-131	02/29/2024 1147
PFBA	16	17		1	105	73-129	02/29/2024 1147
PFDA	16	15		1	95	71-129	02/29/2024 1147
PFDoA	16	18		1	111	72-134	02/29/2024 1147
PFHpA	16	16		1	100	72-130	02/29/2024 1147
PFHxA	16	17		1	107	72-129	02/29/2024 1147
PFNA	16	15		1	95	69-130	02/29/2024 1147
PFOA	16	17		1	107	71-133	02/29/2024 1147
PFPeA	16	17		1	109	72-129	02/29/2024 1147
PFTeDA	16	17		1	109	71-132	02/29/2024 1147
PFTrDA	16	16		1	98	65-144	02/29/2024 1147
PFUdA	16	18		1	114	69-133	02/29/2024 1147
PFOS	15	16		1	106	65-140	02/29/2024 1147

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		87	50-150
13C2_6:2FTS		97	50-150
13C2_8:2FTS	M-03	82	50-150
13C2_PFDoA		80	50-150
13C2_PFTeDA		95	50-150
13C3_PFBS		85	50-150
13C3_PFHxS		89	50-150
13C3-HFPO-DA		92	50-150
13C4_PFBA		88	50-150
13C4_PFHpA		88	50-150
13C5_PFHxA		79	50-150
13C5_PFPeA		86	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ97495-002
Batch: 97495
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 02/28/2024 2027

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		89	50-150
13C7_PFUdA		78	50-150
13C8_PFOA		90	50-150
13C8_PFOS		84	50-150
13C8_PFOSA		82	50-150
13C9_PFNA		92	50-150
d5-EtFOSAA		99	50-150
d3-MeFOSAA		89	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID: ZB09009-001MS
Batch: 97495
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 02/28/2024 2027

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	ND	13	13		1	95	50-150	02/29/2024 1322
11Cl-PF3OUdS	ND	14	11		1	81	50-150	02/29/2024 1322
8:2 FTS	ND	14	12	M-03	1	87	67-138	02/29/2024 1322
6:2 FTS	ND	14	14	M-03	1	104	64-140	02/29/2024 1322
4:2 FTS	ND	13	12	M-03	1	91	63-143	02/29/2024 1322
GenX	ND	29	32		1	110	50-150	02/29/2024 1322
ADONA	ND	14	13		1	97	50-150	02/29/2024 1322
EtFOSAA	ND	14	16	M-03	1	114	61-135	02/29/2024 1322
MeFOSAA	ND	14	14		1	95	65-136	02/29/2024 1322
PFBS	2.4	13	16		1	109	72-130	02/29/2024 1322
PFDS	ND	14	13		1	90	53-142	02/29/2024 1322
PFHpS	ND	14	12	M-03	1	91	69-134	02/29/2024 1322
PFNS	ND	14	14		1	102	69-127	02/29/2024 1322
PFOSA	ND	14	13		1	92	67-137	02/29/2024 1322
PFPeS	ND	13	17	N	1	128	71-127	02/29/2024 1322
PFHxS	1.9	13	14		1	91	68-131	02/29/2024 1322
PFBA	5.2	14	22	M-03	1	114	73-129	02/29/2024 1322
PFDA	ND	14	15		1	101	71-129	02/29/2024 1322
PFDoA	ND	14	14		1	98	72-134	02/29/2024 1322
PFHpA	1.2	14	18	M-03	1	118	72-130	02/29/2024 1322
PFHxA	1.7	14	15		1	92	72-129	02/29/2024 1322
PFNA	ND	14	16		1	114	69-130	02/29/2024 1322
PFOA	2.6	14	18	M-03	1	107	71-133	02/29/2024 1322
PFPeA	2.4	14	18		1	106	72-129	02/29/2024 1322
PFTeDA	ND	14	14		1	100	71-132	02/29/2024 1322
PFTrDA	ND	14	13		1	93	65-144	02/29/2024 1322
PFUdA	ND	14	14		1	99	69-133	02/29/2024 1322
PFOS	1.3	13	16	M-03	1	107	65-140	02/29/2024 1322

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS	N	214	50-150
13C2_6:2FTS		150	50-150
13C2_8:2FTS		91	50-150
13C2_PFDoA		80	50-150
13C2_PFTeDA		86	50-150
13C3_PFBS		76	50-150
13C3_PFHxS		87	50-150
13C3-HFPO-DA		84	50-150
13C4_PFBA		53	50-150
13C4_PFHpA		75	50-150
13C5_PFHxA		83	50-150
13C5_PFPeA		85	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID: ZB09009-001MS
Batch: 97495
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 02/28/2024 2027

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		91	50-150
13C7_PFUdA		85	50-150
13C8_PFOA		93	50-150
13C8_PFOS		86	50-150
13C8_PFOSA		84	50-150
13C9_PFNA		84	50-150
d5-EtFOSAA		93	50-150
d3-MeFOSAA		91	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MSD

Sample ID: ZB09009-001MD
Batch: 97495
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 02/28/2024 2027

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
9Cl-PF3ONS	ND	15	17		1	108	26	50-150	30	02/29/2024 1333
11Cl-PF3OUdS	ND	15	14		1	88	22	50-150	30	02/29/2024 1333
8:2 FTS	ND	16	14	M-03	1	91	18	67-138	30	02/29/2024 1333
6:2 FTS	ND	16	15	M-03	1	99	7.8	64-140	30	02/29/2024 1333
4:2 FTS	ND	15	16		1	104	26	63-143	30	02/29/2024 1333
GenX	ND	33	36		1	109	13	50-150	30	02/29/2024 1333
ADONA	ND	15	16		1	105	21	50-150	30	02/29/2024 1333
EtFOSAA	ND	16	18	M-03	1	112	12	61-135	30	02/29/2024 1333
MeFOSAA	ND	16	16		1	98	17	65-136	30	02/29/2024 1333
PFBS	2.4	15	17		1	97	1.4	72-130	30	02/29/2024 1333
PFDS	ND	16	16		1	101	25	53-142	30	02/29/2024 1333
PFHpS	ND	16	17		1	107	29	69-134	30	02/29/2024 1333
PFNS	ND	16	16		1	103	15	69-127	30	02/29/2024 1333
PFOSA	ND	16	17	M-03	1	105	27	67-137	30	02/29/2024 1333
PFPeS	ND	15	19		1	120	7.3	71-127	30	02/29/2024 1333
PFHxS	1.9	15	16		1	91	12	68-131	30	02/29/2024 1333
PFBA	5.2	16	22	M-03	1	101	0.96	73-129	30	02/29/2024 1333
PFDA	ND	16	19		1	113	25	71-129	30	02/29/2024 1333
PFDoA	ND	16	17		1	105	20	72-134	30	02/29/2024 1333
PFHpA	1.2	16	18		1	101	2.0	72-130	30	02/29/2024 1333
PFHxA	1.7	16	19	M-03	1	103	22	72-129	30	02/29/2024 1333
PFNA	ND	16	15		1	91	8.8	69-130	30	02/29/2024 1333
PFOA	2.6	16	20	M-03	1	105	9.9	71-133	30	02/29/2024 1333
PFPeA	2.4	16	19		1	99	5.8	72-129	30	02/29/2024 1333
PFTeDA	ND	16	18		1	108	21	71-132	30	02/29/2024 1333
PFTrDA	ND	16	16		1	100	20	65-144	30	02/29/2024 1333
PFUdA	ND	16	19		1	114	27	69-133	30	02/29/2024 1333
PFOS	1.3	15	18	M-03	1	109	14	65-140	30	02/29/2024 1333

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS	N	187	50-150
13C2_6:2FTS		113	50-150
13C2_8:2FTS		93	50-150
13C2_PFDoA		73	50-150
13C2_PFTeDA		82	50-150
13C3_PFBS		80	50-150
13C3_PFHxS		83	50-150
13C3-HFPO-DA		88	50-150
13C4_PFBA		60	50-150
13C4_PFHpA		77	50-150
13C5_PFHxA		83	50-150
13C5_PFPeA		88	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MSD

Sample ID: ZB09009-001MD
Batch: 97495
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 02/28/2024 2027

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		74	50-150
13C7_PFUdA		74	50-150
13C8_PFOA		87	50-150
13C8_PFOS		77	50-150
13C8_PFOSA		82	50-150
13C9_PFNA		88	50-150
d5-EtFOSAA		86	50-150
d3-MeFOSAA		79	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Chain of Custody
and
Miscellaneous Documents

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Number 155433

Client: Arcadis	Report to Contact: Meena Samp	Telephone No. / E-mail: 248-994-2318 meena.samp@arcadis.com	Quote No.
Address: 28550 Cabot Dr. Ste 500	Sampler's Signature: x Aymara Mandich	Analysis (Attach list if more space is needed)	Page 1 of 1
City: Novi	State: MI	Zip Code: 48377	Printed Name:	Lot # Bar Code: ZB09009
Project Name: RACER Lansing PFAS Delineation			
Project No.: 30171052.0370B	P.O. No.		

Sample ID / Description (Containers for each sample may be combined on one line.)	Collection Date(s)	Collection Time (Military)	Grab / Composite	Matrix: Aqueous	Soil	Non-Aqueous	No. of Containers by Preservative Type: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Other	EPA 537M (PFAS) NE List of 28	MS/MSD
MichAve-MH-3_020824	2/8/2024	0905	G	X			6							6	MS/MSD
Verlinden-MH-5_020824	2/8/2024	0925	G	X			2							2	
Dsboom-MH-1_020824	2/8/2024	1010	G	X			2							2	Please provide results + QC along w/ EDD for all samples
DUP-01_020824	2/8/2024	—	G	X			2							2	
PZ-MH-28A_020824	2/8/2024	1105	G	X			2							2	
PZ-MH-W_020824	2/8/2024	1155	G	X			2							2	
PZ-MH-2_020824	2/8/2024	1230	G	X			2							2	
FB-01_020824	2/8/2024	1252	G	X			2							2	
EB-01_020824	2/8/2024	1255	G	X			2							2	

Turn Around Time Required (Prior lab approval required for expedited TAT.): [X] Standard [ ] Rush (Specify)

Sample Disposal: [ ] Return to Client [X] Disposal by Lab

Possible Hazard Identification: [X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison [ ] Unknown

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished by: Aymara Mandich / Arcadis	2/8/24	1415	1. Received by: FedEx	2/8/24	1415
2. Relinquished by	Date	Time	2. Received by	Date	Time
3. Relinquished by	Date	Time	3. Received by	Date	Time
4. Relinquished by: FedEx	2/09/24	0925	4. Laboratory received by: [illegible]	2/09/24	0925

Note: All samples are retained for four weeks from receipt unless other arrangements are made.

LAB USE ONLY — Received on Ice (Circle): (Yes) No — Ice Pack — Receipt Temp: 2.4 °C — Temp Blank: [ ] Y [✓] N

DISTRIBUTION: WHITE & YELLOW-Return to laboratory with Sample(s); PINK-Field/Client Copy — Document Number: ME003N2-01

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PACE ANALYTICAL SERVICES, LLC

DC#_Title: ENV-FRM-WCOL-0286 v02_Samples Receipt Checklist (SRC)
Effective Date: 8/2/2022

ZB09009

Sample Receipt Checklist (SRC)

Client: Arcadis Cooler Inspected by/date: KBP82 / 02/09/24 Lot #:

Means of receipt: ☐ Pace ☐ Client ☐ UPS ☑ FedEx ☐ Other:

☑ Yes	☐ No	Exp 02/10/24	1. Were custody seals present on the cooler?
☑ Yes	☐ No	☐ NA	2. If custody seals were present, were they intact and unbroken?

pH Strip ID: NA Chlorine Strip ID: NA Tested by: NA

Original temperature upon receipt / Derived (Corrected) temperature upon receipt %Solid Snap Cup ID: NA

2.4/2.4 °C NA / NA °C NA / NA °C NA / NA °C KBP82 02/09/24

Method: ☐ Temperature Blank ☑ Against Bottles IR Gun ID: 8 IR Gun Correction Factor: 0 °C

Method of coolant: ☑ Wet Ice ☐ Ice Packs ☐ Dry Ice ☐ None

☑ Yes	☐ No	☐ NA	3. Were all coolers received at or below 6.0°C? If no, was Project Manager notified? PM was Notified by: phone / email / face-to-face (circle one).
☑ Yes	☐ No	☐ NA	4. Is the commercial courier's packing slip attached to this form?
☑ Yes	☐ No		5. Were proper custody procedures (relinquished/received) followed?
☑ Yes	☐ No		6. Were sample IDs listed on the COC and all sample containers?
☑ Yes	☐ No		7. Was collection date & time listed on the COC and all sample containers?
☑ Yes	☐ No		8. Did all container label information (ID, date, time) agree with the COC?
☑ Yes	☐ No		9. Were tests to be performed listed on the COC?
☑ Yes	☐ No		10. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)?
☑ Yes	☐ No		11. Was adequate sample volume available?
☑ Yes	☐ No		12. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
☑ Yes	☐ No		13. Were all samples containers accounted for? (No missing/excess)
☐ Yes	☐ No	☑ NA	14. Were VOA, 8015C and RSK-175 samples free of bubbles >"pea-size" (¼"or 6mm in diameter) in any of the VOA vials?
☐ Yes	☐ No	☑ NA	15. Were all DRO/metals/nutrient samples received at a pH of < 2?
☐ Yes	☐ No	☑ NA	16. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
☐ Yes	☐ No	☑ NA	17. Were all applicable NH_3/TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?
☑ Yes	☐ No	☐ NA	18. Was the quote number listed on the container label? If yes, Quote # 25015

Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)

Sample(s) NA were received incorrectly preserved and were adjusted accordingly in sample receiving with NA mL of circle one: H_2SO_4, HNO_3, HCl, NaOH using SR # NA . ☐
Time of preservation NA. If more than one preservative is needed, please note in the comments below.

Sample(s) NA were received with bubbles >6 mm in diameter.

Samples(s) NA were received with TRC > 0.5 mg/L (If #19 is *no*) and were adjusted accordingly in sample receiving with sodium thiosulfate ($Na_2S_2O_3$) with Unique ID: NA.

Comments:

Qualtrax ID: 56360 Pace® Analytical Services, LLC Page 1 of 1

Report of Analysis

Arcadis U.S., Inc.
630 Plaza Drive
Suite 600
Highlands Ranch, CO 80129
Attention: Marina Samp

Project Name: RACER Lansing

Project Number: 30214036.0370B

Lot Number:**ZD11029**

Date Completed:04/30/2024

04/30/2024 11:04 AM
Approved and released by:
Project Manager II: **Kathy E. Smith**





The electronic signature above is the equivalent of a handwritten signature.
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Pace Analytical Services, LLC (*formerly Shealy Environmental Services, Inc.*)
106 Vantage Point Drive West Columbia, SC 29172
Tel: 803-791-9700 Fax: 803-791-9111 www.pacelabs.com

Case Narrative
Arcadis U.S., Inc.
Lot Number: ZD11029

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.
Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved The NELAC Institute (TNI) standards, the Pace Analytical Services, LLC ("Pace") Laboratory Quality Manual, standard operating procedures (SOPs), and Pace policies. Additionally, the DoD QSM version 5.4 has been followed for these samples, and specifically Table B-15 was followed for all PFAS samples. Any exceptions to the TNI standards, the Laboratory Quality Manual, SOPs, the DoD QSM, or policies are qualified on the results page or discussed below.

All QC associated with these samples were compliant with DOD QSM 5.4 table B-15 and our PFAS SOP.
Correction factors (CF) are used to calculate the original sample concentration. The CF is the inverse of the concentration factor (sample volume / extract final volume) times the dilution factor (DF). The CF is calculated as follows:

CF = DF * FV / Vo
FV is volume of extract (mL)
Vo is initial sample volume (mL)
DF is dilution factor. For undiluted analysis, DF = 1.

Sample concentration for aqueous samples:
Concentration (ng/L) = Cs*CF,

$$C_s = \frac{\left(\frac{(A_s x C_{is})}{A_{is}}\right) - B}{M1}$$

Where

C_s is on column concentration of target analyte in the sample (ng/L)
C_{is} is concentration of internal standard in the sample (ng/L)
A_s is peak response of target analyte in the sample
A_{is} is peak response of internal standard in the sample
M1 is the average RF from ICAL or the slope from linear regression ICAL
B is the y-intercept from the ICAL

Pace is a DoD/DOE accredited laboratory; however, the following analyses are currently not listed on our DoD/DOE scope of accreditation: Drinking Water: pH EPA 150.1, Turbidity EPA 180.1, Metals EPA 200.7 & 200.8, Mercury EPA 245.1, Anions EPA 300.0, Cyanide EPA 335.4, Nitrates EPA 353.2, Orthophosphate & Phosphorus EPA 365.1, EDB/DBCP EPA 504.1, HPC SIMPLATE, Color SM 2120 B-2011, Alkalinity SM 2320 B-2011, Specific Conductance SM 2510 B-2011, Residue-filterable (TDS) SM 2540 C, Calcium Hardness (CaCO2) SM 3500-Ca B-2011, TRC SM 4500 Cl G-2011, pH SM 4500 H=B-2011, E.Coli, Total Coliform. Non-Potable Water: Metals EPA 200.7, Strontium EPA 200.8, Chlorate EPA

300.0, Cyanide EPA 335.4, Phenolics EPA 420.4, 2-Methyl-4,6-Dinitrophenol EPA 625.1, Propane RSK-175, Specific Conductance SM 2510 B-2011, Salinity SM2520 B, Residue- total SM 2540 B, Sulfite SM 4500 SO32- B-2011, Amenable Cyanide SM 4500-CN- G-2011, BOD & CBOD SM 5210 B, MBAS SM 5540 C-2011, Boron & Titanium SW-846 6010D, Boron, Molybdenum, & Titanium SW-846 6020B, Alcohols & Glycols SW-846 8015C, Pentachlorophenol SW-846 8151A, Ethyl Acetate, Hexane, & n-Hexane SW-846 8260D, SVOC 1,4-Dioxane, 4-Dimethyl aminoazobenzene, 1,4-Naphthoquinone, 3,5-Dinitroaniline, PETN SW-846 8270E, Amenable Cyanide SW-846 9012B. Solid and Chemical Materials: Boron & Titanium SW-846 6010D, Molybdenum SW-846 6020B, Ethylene Glycol SW-846 8015B, Pentachlorophenol SW-846 8151A, Chloroprene SW-846 8260B, SVOC 1,4-Dioxane, 1,3,5-Trinitrobenzene, 1,4- Naphthoquinone, 1,4-Phenylenediamine, 2,4-Dinitrotoluene, 2,6-Dinitrotoluene, 3-Methylcholanthrene, 4-Aminobiphenyl, 4-Dimethyl aminoazobenzene, 4-Nitroquinoline-1-oxide, 7,12-Dimethylbenzo(a)anthracene, Chlorobenzilate, Diallate, Ethyl methanesulfonate, Isodrin, Isosafrole, Methyl methanesulfonate, n-Nitrosomethylethylamine, n-Nitrosomorpholine, n-Nitrosopiperidine, Piperonyl butoxide, Pronamide, Safrole, 3,5- Dinitroaniline, PETN SW-846 8270E, Oil & Grease SW-846 9071B.

Pace is a TNI accredited laboratory; however, the following analyses are currently not listed on our TNI scope of accreditation: E. coli and Total coliforms SM 9223 B-2004, Solid Chemical Material: TOC Walkley-Black, Biological Tissue: All, Non-Potable Water: SGT-HEM EPA 1664B, Silica EPA 200.7, Boron, Calcium, Silicon, Strontium EPA 200.8, Bicarbonate, Carbonate, and Hydroxide Alkalinity SM 2320 B-2011, SM 9221 C E-2006 & SM 9222D-2006, Strontium SW-846 6010D, VOC SM 6200 B-2011, Fecal Coliform Colilert-18. If you have any questions regarding this report, please contact the Pace Project Manager listed on the cover page.

PFAS
Samples ZD11029-003, ZD11029-004, ZD11029-007 required centrifugation prior to extraction, due to excessive solids present in the samples. Centrifugation was performed following the PFAS Aqueous Centrifuge Protocol; samples were spiked with Surrogate (SUR; Extracted Internal Standard/EIS) and shaken vigorously before being poured into a conical bottle and centrifuged. The centrifuged aqueous sample was decanted back into the original sample bottle, off of the condensed solids remaining in the centrifuge bottle. Original sample bottle was rinsed as normal and centrifuge bottle was rinsed with 4mL of MeOH. Centrifuge bottle rinsate was added to the elution. Samples concentrated to <5mL and reconstituted to 5mL using MeOH by transfer pipet.

Surrogate recovery for the following samples was outside the upper control limit: ZD11029-001, ZD11029-002, ZD11029-003, ZD11029-004, ZD11029-005, ZD11029-006, ZD11029-007. These samples did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

Manual Integration Summary

Arcadis U.S., Inc.

Lot Number: ZD11029

Project Name: RACER Lansing

Project Number: 30214036.0370B

Where applicable, analytes for which manual integration occurred have been flagged with the following:

Qualifier	Technical Justification	Qualifier	Technical Justification	Qualifier	Technical Justification
M-01	Split peak	M-07	Low fit	M-13	Error
M-02	Peak tailing	M-08	Peak not found	M-14	Baseline
M-03	Incorrect auto integration	M-09	Analyte not Identified by the Data System	M-15	Other
M-04	Poor chromatography	M-10	Analyte misidentified by the Data System	M-16	Retention time shift
M-05	Manually assigned peak	M-11	Invalid integration	M-17	Shouldering
M-06	Wrong isomer	M-12	Wrong peak		

A summary of instances where manual integration occurred is included below:

Method	Sample	Run Number	Parameter	Qualifier
PFAS by ID SOP	ZD11029-001	1	Perfluoro-1-butanesulfonic acid (PFBS)	M-03
PFAS by ID SOP	ZD11029-001	1	Perfluorohexanesulfonic acid (PFHxS)	M-03
PFAS by ID SOP	ZD11029-001	1	Perfluorooctanesulfonic acid (PFOS)	M-03
PFAS by ID SOP	ZD11029-002	1	Perfluorohexanesulfonic acid (PFHxS)	M-03
PFAS by ID SOP	ZD11029-002	1	Perfluoro-n-butanoic acid (PFBA)	M-03
PFAS by ID SOP	ZD11029-002	1	Perfluoro-n-heptanoic acid (PFHpA)	M-03
PFAS by ID SOP	ZD11029-002	1	Perfluorooctanesulfonic acid (PFOS)	M-03
PFAS by ID SOP	ZD11029-003	1	Perfluoro-1-butanesulfonic acid (PFBS)	M-03
PFAS by ID SOP	ZD11029-003	1	Perfluorohexanesulfonic acid (PFHxS)	M-03
PFAS by ID SOP	ZD11029-003	1	Perfluoro-n-butanoic acid (PFBA)	M-03
PFAS by ID SOP	ZD11029-003	1	Perfluoro-n-hexanoic acid (PFHxA)	M-03
PFAS by ID SOP	ZD11029-003	1	Perfluorooctanesulfonic acid (PFOS)	M-03
PFAS by ID SOP	ZD11029-004	1	Perfluoro-1-butanesulfonic acid (PFBS)	M-03
PFAS by ID SOP	ZD11029-004	1	Perfluorohexanesulfonic acid (PFHxS)	M-03
PFAS by ID SOP	ZD11029-004	1	Perfluoro-n-butanoic acid (PFBA)	M-03
PFAS by ID SOP	ZD11029-004	1	Perfluoro-n-octanoic acid (PFOA)	M-03
PFAS by ID SOP	ZD11029-004	1	Perfluorooctanesulfonic acid (PFOS)	M-03
PFAS by ID SOP	ZD11029-005	1	Perfluoro-1-butanesulfonic acid (PFBS)	M-03
PFAS by ID SOP	ZD11029-006	1	Perfluorohexanesulfonic acid (PFHxS)	M-03
PFAS by ID SOP	ZD11029-006	1	Perfluoro-n-heptanoic acid (PFHpA)	M-03
PFAS by ID SOP	ZD11029-006	1	Perfluoro-n-hexanoic acid (PFHxA)	M-03
PFAS by ID SOP	ZD11029-006	1	Perfluoro-n-nonanoic acid (PFNA)	M-03
PFAS by ID SOP	ZD11029-006	1	Perfluorooctanesulfonic acid (PFOS)	M-03
PFAS by ID SOP	ZD11029-007	1	Perfluorohexanesulfonic acid (PFHxS)	M-03
PFAS by ID SOP	ZQ10666-002	1	N-ethylperfluoro-1-	M-03
PFAS by ID SOP	ZD11029-001MD	1	N-ethylperfluoro-1-	M-03
PFAS by ID SOP	ZD11029-001MD	1	N-methylperfluoro-1-	M-03
PFAS by ID SOP	ZQ10666-002	1	Perfluoro-1-octanesulfonamide (PFOSA)	M-03
PFAS by ID SOP	ZD11029-001MS	1	Perfluoro-1-octanesulfonamide (PFOSA)	M-03
PFAS by ID SOP	ZQ10666-002	1	Perfluoro-n-octanoic acid (PFOA)	M-03
PFAS by ID SOP	ZD11029-001MD	1	Perfluoro-n-octanoic acid (PFOA)	M-03
PFAS by ID SOP	ZQ10666-001	1	13C4_PFBA	M-03
PFAS by ID SOP	ZQ10508-002	1	N-ethylperfluoro-1-	M-03
PFAS by ID SOP	ZQ10508-002	1	N-methylperfluoro-1-	M-03
PFAS by ID SOP	ZQ10508-003	1	Perfluoro-n-butanoic acid (PFBA)	M-03
PFAS by ID SOP	ZQ10508-003	1	Perfluorooctanesulfonic acid (PFOS)	M-03

Manual Integration Summary

Arcadis U.S., Inc.

Lot Number: ZD11029

Project Name: RACER Lansing

Project Number: 30214036.0370B

Where applicable, analytes for which manual integration occurred have been flagged with the following:

Qualifier	Technical Justification	Qualifier	Technical Justification	Qualifier	Technical Justification
M-01	Split peak	M-07	Low fit	M-13	Error
M-02	Peak tailing	M-08	Peak not found	M-14	Baseline
M-03	Incorrect auto integration	M-09	Analyte not Identified by the Data System	M-15	Other
M-04	Poor chromatography	M-10	Analyte misidentified by the Data System	M-16	Retention time shift
M-05	Manually assigned peak	M-11	Invalid integration	M-17	Shouldering
M-06	Wrong isomer	M-12	Wrong peak		

A summary of instances where manual integration occurred is included below:

Method	Sample	Run Number	Parameter	Qualifier

If you have any questions regarding this report, please contact the Pace Project Manager listed on the cover page.

Sample Summary
Arcadis U.S., Inc.
Lot Number: ZD11029
Project Name: RACER Lansing
Project Number: 30214036.0370B

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	MichAve-MH-3_041024	Aqueous	04/10/2024 0905	04/11/2024
002	Verlinden-MH-5_041024	Aqueous	04/10/2024 0925	04/11/2024
003	Osborn-MH-1_041024	Aqueous	04/10/2024 0950	04/11/2024
004	Dup-01_041024	Aqueous	04/10/2024	04/11/2024
005	P3-MH-284_041024	Aqueous	04/10/2024 1050	04/11/2024
006	P2-MH-2_041024	Aqueous	04/10/2024 1135	04/11/2024
007	P2-MH-W_041024	Aqueous	04/10/2024 1205	04/11/2024
008	FB-01_041024	Aqueous	04/10/2024 1240	04/11/2024
009	EB-01_041024	Aqueous	04/10/2024 1245	04/11/2024

(9 samples)

Detection Summary

Arcadis U.S., Inc.

Lot Number: ZD11029

Project Name: RACER Lansing

Project Number: 30214036.0370B

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	MichAve-MH-3_041024	Aqueous	PFBS	PFAS by ID	3.2	JM-03	ng/L	9
001	MichAve-MH-3_041024	Aqueous	PFHxS	PFAS by ID	3.5	JM-03	ng/L	9
001	MichAve-MH-3_041024	Aqueous	PFBA	PFAS by ID	6.9		ng/L	9
001	MichAve-MH-3_041024	Aqueous	PFHpA	PFAS by ID	2.4	J	ng/L	9
001	MichAve-MH-3_041024	Aqueous	PFOA	PFAS by ID	5.1		ng/L	9
001	MichAve-MH-3_041024	Aqueous	PFPeA	PFAS by ID	4.5		ng/L	9
001	MichAve-MH-3_041024	Aqueous	PFOS	PFAS by ID	2.5	JM-03	ng/L	9
002	Verlinden-MH-5_041024	Aqueous	PFBS	PFAS by ID	4.3		ng/L	11
002	Verlinden-MH-5_041024	Aqueous	PFHxS	PFAS by ID	1.9	JM-03	ng/L	11
002	Verlinden-MH-5_041024	Aqueous	PFBA	PFAS by ID	9.3	M-03	ng/L	11
002	Verlinden-MH-5_041024	Aqueous	PFHpA	PFAS by ID	12	M-03	ng/L	11
002	Verlinden-MH-5_041024	Aqueous	PFHxA	PFAS by ID	16		ng/L	11
002	Verlinden-MH-5_041024	Aqueous	PFNA	PFAS by ID	2.0	J	ng/L	11
002	Verlinden-MH-5_041024	Aqueous	PFOA	PFAS by ID	27		ng/L	11
002	Verlinden-MH-5_041024	Aqueous	PFPeA	PFAS by ID	18		ng/L	11
002	Verlinden-MH-5_041024	Aqueous	PFOS	PFAS by ID	6.7	M-03	ng/L	11
003	Osborn-MH-1_041024	Aqueous	PFBS	PFAS by ID	1.7	JM-03	ng/L	13
003	Osborn-MH-1_041024	Aqueous	PFHxS	PFAS by ID	2.0	JM-03	ng/L	13
003	Osborn-MH-1_041024	Aqueous	PFBA	PFAS by ID	13	M-03	ng/L	13
003	Osborn-MH-1_041024	Aqueous	PFDA	PFAS by ID	3.7	J	ng/L	13
003	Osborn-MH-1_041024	Aqueous	PFHpA	PFAS by ID	12		ng/L	13
003	Osborn-MH-1_041024	Aqueous	PFHxA	PFAS by ID	16	M-03	ng/L	13
003	Osborn-MH-1_041024	Aqueous	PFNA	PFAS by ID	5.4		ng/L	13
003	Osborn-MH-1_041024	Aqueous	PFOA	PFAS by ID	28		ng/L	13
003	Osborn-MH-1_041024	Aqueous	PFPeA	PFAS by ID	18		ng/L	13
003	Osborn-MH-1_041024	Aqueous	PFOS	PFAS by ID	17	M-03	ng/L	13
004	Dup-01_041024	Aqueous	PFBS	PFAS by ID	1.2	JM-03	ng/L	15
004	Dup-01_041024	Aqueous	PFHxS	PFAS by ID	2.2	JM-03	ng/L	15
004	Dup-01_041024	Aqueous	PFBA	PFAS by ID	13	M-03	ng/L	15
004	Dup-01_041024	Aqueous	PFDA	PFAS by ID	4.0	J	ng/L	15
004	Dup-01_041024	Aqueous	PFHpA	PFAS by ID	14		ng/L	15
004	Dup-01_041024	Aqueous	PFHxA	PFAS by ID	16		ng/L	15
004	Dup-01_041024	Aqueous	PFNA	PFAS by ID	4.5		ng/L	15
004	Dup-01_041024	Aqueous	PFOA	PFAS by ID	28	M-03	ng/L	15
004	Dup-01_041024	Aqueous	PFPeA	PFAS by ID	16		ng/L	15
004	Dup-01_041024	Aqueous	PFOS	PFAS by ID	15	M-03	ng/L	15
005	P3-MH-284_041024	Aqueous	PFBS	PFAS by ID	1.7	JM-03	ng/L	17
005	P3-MH-284_041024	Aqueous	PFOS	PFAS by ID	2.6	J	ng/L	17
006	P2-MH-2_041024	Aqueous	PFBS	PFAS by ID	2.9	J	ng/L	19
006	P2-MH-2_041024	Aqueous	PFHxS	PFAS by ID	3.2	JM-03	ng/L	19
006	P2-MH-2_041024	Aqueous	PFBA	PFAS by ID	6.8		ng/L	19
006	P2-MH-2_041024	Aqueous	PFHpA	PFAS by ID	4.4	M-03	ng/L	19
006	P2-MH-2_041024	Aqueous	PFHxA	PFAS by ID	6.0	M-03	ng/L	19

Detection Summary (Continued)

Lot Number: ZD11029

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
006	P2-MH-2_041024	Aqueous	PFNA	PFAS by ID	1.2	JM-03	ng/L	19
006	P2-MH-2_041024	Aqueous	PFOA	PFAS by ID	10		ng/L	19
006	P2-MH-2_041024	Aqueous	PFPeA	PFAS by ID	4.5		ng/L	19
006	P2-MH-2_041024	Aqueous	PFOS	PFAS by ID	8.4	M-03	ng/L	19
007	P2-MH-W_041024	Aqueous	PFHxS	PFAS by ID	1.3	JM-03	ng/L	21
007	P2-MH-W_041024	Aqueous	PFBA	PFAS by ID	3.5	J	ng/L	21

(49 detections)

PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZD11029-001**

Description: **MichAve-MH-3_041024** Matrix: **Aqueous**

Date Sampled: **04/10/2024 0905** Project Name: **RACER Lansing**

Date Received: **04/11/2024** Project Number: **30214036.0370B**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	04/26/2024 1407	NRP	04/25/2024 1228	10666

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		8.3	2.1	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		8.3	2.1	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		8.3	2.1	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	8.3	2.1	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	8.3	2.1	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		8.3	2.1	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		8.3	2.1	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		8.3	2.1	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		8.3	2.1	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**3.2**	**JM-03**	**4.2**	**1.0**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		4.2	1.0	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		4.2	1.0	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		4.2	1.0	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		4.2	1.0	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		4.2	1.0	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**3.5**	**JM-03**	**4.2**	**1.0**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**6.9**		**4.2**	**1.5**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		4.2	1.0	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		4.2	1.0	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**2.4**	**J**	**4.2**	**1.0**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		4.2	1.0	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		4.2	1.0	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**5.1**		**4.2**	**1.0**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**4.5**		**4.2**	**1.0**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		4.2	1.0	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		4.2	1.0	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		4.2	1.0	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**2.5**	**JM-03**	**4.2**	**1.0**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	288	50-150
13C2_6:2FTS	N	161	50-150
13C2_8:2FTS		103	50-150
13C2_PFDoA		87	50-150
13C2_PFTeDA		113	50-150
13C3_PFBS		93	50-150
13C3_PFHxS		101	50-150
13C3-HFPO-DA		84	50-150
13C4_PFBA		58	50-150
13C4_PFHpA		93	50-150
13C5_PFHxA		108	50-150
13C5_PFPeA		88	50-150
13C6_PFDA		96	50-150
13C7_PFUdA		102	50-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**		Laboratory ID: **ZD11029-001**
Description: **MichAve-MH-3_041024**		Matrix: **Aqueous**
Date Sampled: **04/10/2024 0905**	Project Name: **RACER Lansing**	
Date Received: **04/11/2024**	Project Number: **30214036.0370B**	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		102	50-150
13C8_PFOS		94	50-150
13C8_PFOSA		93	50-150
13C9_PFNA		103	50-150
d5-EtFOSAA		94	50-150
d3-MeFOSAA		90	50-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
ND = Not detected at or above the DL	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis			S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZD11029-002**

Description: **Verlinden-MH-5_041024** Matrix: **Aqueous**

Date Sampled: **04/10/2024 0925** Project Name: **RACER Lansing**

Date Received: **04/11/2024** Project Number: **30214036.0370B**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	04/24/2024 1744	NRP	04/23/2024 1125	10508

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		8.3	2.1	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		8.3	2.1	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		8.3	2.1	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		8.3	2.1	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	8.3	2.1	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		8.3	2.1	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		8.3	2.1	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		8.3	2.1	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		8.3	2.1	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**4.3**		**4.1**	**1.0**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**1.9**	**JM-03**	**4.1**	**1.0**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**9.3**	**M-03**	**4.1**	**1.5**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**12**	**M-03**	**4.1**	**1.0**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**16**		**4.1**	**1.0**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**2.0**	**J**	**4.1**	**1.0**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**27**		**4.1**	**1.0**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**18**		**4.1**	**1.0**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**6.7**	**M-03**	**4.1**	**1.0**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	197	50-150
13C2_6:2FTS		138	50-150
13C2_8:2FTS		113	50-150
13C2_PFDoA		89	50-150
13C2_PFTeDA		94	50-150
13C3_PFBS		93	50-150
13C3_PFHxS		103	50-150
13C3-HFPO-DA		88	50-150
13C4_PFBA		69	50-150
13C4_PFHpA		94	50-150
13C5_PFHxA		104	50-150
13C5_PFPeA		96	50-150
13C6_PFDA		88	50-150
13C7_PFUdA		95	50-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZD11029-002**

Description: **Verlinden-MH-5_041024** Matrix: **Aqueous**

Date Sampled: **04/10/2024 0925** Project Name: **RACER Lansing**

Date Received: **04/11/2024** Project Number: **30214036.0370B**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		112	50-150
13C8_PFOS		88	50-150
13C8_PFOSA		94	50-150
13C9_PFNA		101	50-150
d5-EtFOSAA		100	50-150
d3-MeFOSAA		93	50-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZD11029-003**

Description: **Osborn-MH-1_041024** Matrix: **Aqueous**

Date Sampled: **04/10/2024 0950** Project Name: **RACER Lansing**

Date Received: **04/11/2024** Project Number: **30214036.0370B**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	04/24/2024 1755	NRP	04/23/2024 1125	10508

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		8.5	2.1	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		8.5	2.1	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND	Q	8.5	2.1	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	8.5	2.1	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	8.5	2.1	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		8.5	2.1	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		8.5	2.1	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		8.5	2.1	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		8.5	2.1	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**1.7**	**JM-03**	**4.2**	**1.1**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**2.0**	**JM-03**	**4.2**	**1.1**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**13**	**M-03**	**4.2**	**1.5**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	**335-76-2**	**PFAS by ID SOP**	**3.7**	**J**	**4.2**	**1.1**	**ng/L**	**1**
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**12**		**4.2**	**1.1**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**16**	**M-03**	**4.2**	**1.1**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**5.4**		**4.2**	**1.1**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**28**		**4.2**	**1.1**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**18**		**4.2**	**1.1**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**17**	**M-03**	**4.2**	**1.1**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	227	50-150
13C2_6:2FTS	N	216	50-150
13C2_8:2FTS	N	205	50-150
13C2_PFDoA		103	50-150
13C2_PFTeDA		87	50-150
13C3_PFBS		98	50-150
13C3_PFHxS		107	50-150
13C3-HFPO-DA		76	50-150
13C4_PFBA		74	50-150
13C4_PFHpA		97	50-150
13C5_PFHxA		103	50-150
13C5_PFPeA		93	50-150
13C6_PFDA		109	50-150
13C7_PFUdA		104	50-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**
Laboratory ID: **ZD11029-003**
Description: **Osborn-MH-1_041024**
Matrix: **Aqueous**
Date Sampled: **04/10/2024 0950**
Project Name: **RACER Lansing**
Date Received: **04/11/2024**
Project Number: **30214036.0370B**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		110	50-150
13C8_PFOS		90	50-150
13C8_PFOSA		99	50-150
13C9_PFNA		106	50-150
d5-EtFOSAA		138	50-150
d3-MeFOSAA		126	50-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZD11029-004**

Description: **Dup-01_041024** Matrix: **Aqueous**

Date Sampled: **04/10/2024** Project Name: **RACER Lansing**

Date Received: **04/11/2024** Project Number: **30214036.0370B**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	04/24/2024 1806	NRP	04/23/2024 1125	10508

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		8.4	2.1	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		8.4	2.1	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND	Q	8.4	2.1	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	8.4	2.1	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	8.4	2.1	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		8.4	2.1	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		8.4	2.1	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		8.4	2.1	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		8.4	2.1	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**1.2**	**JM-03**	**4.2**	**1.1**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**2.2**	**JM-03**	**4.2**	**1.1**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**13**	**M-03**	**4.2**	**1.5**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	**335-76-2**	**PFAS by ID SOP**	**4.0**	**J**	**4.2**	**1.1**	**ng/L**	**1**
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**14**		**4.2**	**1.1**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**16**		**4.2**	**1.1**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**4.5**		**4.2**	**1.1**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**28**	**M-03**	**4.2**	**1.1**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**16**		**4.2**	**1.1**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**15**	**M-03**	**4.2**	**1.1**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	251	50-150
13C2_6:2FTS	N	229	50-150
13C2_8:2FTS	N	226	50-150
13C2_PFDoA		104	50-150
13C2_PFTeDA		90	50-150
13C3_PFBS		111	50-150
13C3_PFHxS		119	50-150
13C3-HFPO-DA		88	50-150
13C4_PFBA		78	50-150
13C4_PFHpA		100	50-150
13C5_PFHxA		103	50-150
13C5_PFPeA		98	50-150
13C6_PFDA		108	50-150
13C7_PFUdA		110	50-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZD11029-004**

Description: **Dup-01_041024** Matrix: **Aqueous**

Date Sampled: **04/10/2024** Project Name: **RACER Lansing**

Date Received: **04/11/2024** Project Number: **30214036.0370B**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		123	50-150
13C8_PFOS		92	50-150
13C8_PFOSA		105	50-150
13C9_PFNA		127	50-150
d5-EtFOSAA		150	50-150
d3-MeFOSAA		131	50-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZD11029-005**

Description: **P3-MH-284_041024** Matrix: **Aqueous**

Date Sampled: **04/10/2024 1050** Project Name: **RACER Lansing**

Date Received: **04/11/2024** Project Number: **30214036.0370B**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	04/24/2024 1816	NRP	04/23/2024 1125	10508

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		8.4	2.1	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		8.4	2.1	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		8.4	2.1	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	8.4	2.1	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	8.4	2.1	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		8.4	2.1	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		8.4	2.1	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		8.4	2.1	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		8.4	2.1	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**1.7**	**JM-03**	**4.2**	**1.0**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		4.2	1.0	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		4.2	1.0	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		4.2	1.0	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		4.2	1.0	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		4.2	1.0	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		4.2	1.0	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		4.2	1.5	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		4.2	1.0	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		4.2	1.0	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		4.2	1.0	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		4.2	1.0	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		4.2	1.0	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		4.2	1.0	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		4.2	1.0	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		4.2	1.0	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		4.2	1.0	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		4.2	1.0	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**2.6**	**J**	**4.2**	**1.0**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	219	50-150
13C2_6:2FTS	N	165	50-150
13C2_8:2FTS		99	50-150
13C2_PFDoA		90	50-150
13C2_PFTeDA		98	50-150
13C3_PFBS		92	50-150
13C3_PFHxS		111	50-150
13C3-HFPO-DA		82	50-150
13C4_PFBA		75	50-150
13C4_PFHpA		101	50-150
13C5_PFHxA		107	50-150
13C5_PFPeA		95	50-150
13C6_PFDA		87	50-150
13C7_PFUdA		89	50-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**		Laboratory ID: **ZD11029-005**
Description: **P3-MH-284_041024**		Matrix: **Aqueous**
Date Sampled: **04/10/2024 1050**	Project Name: **RACER Lansing**	
Date Received: **04/11/2024**	Project Number: **30214036.0370B**	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		111	50-150
13C8_PFOS		87	50-150
13C8_PFOSA		95	50-150
13C9_PFNA		98	50-150
d5-EtFOSAA		101	50-150
d3-MeFOSAA		96	50-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
ND = Not detected at or above the DL	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis			S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZD11029-006**

Description: **P2-MH-2_041024** Matrix: **Aqueous**

Date Sampled: **04/10/2024 1135** Project Name: **RACER Lansing**

Date Received: **04/11/2024** Project Number: **30214036.0370B**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	04/24/2024 1827	NRP	04/23/2024 1125	10508

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		8.2	2.1	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		8.2	2.1	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND	Q	8.2	2.1	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	8.2	2.1	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	8.2	2.1	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		8.2	2.1	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		8.2	2.1	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		8.2	2.1	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		8.2	2.1	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**2.9**	**J**	**4.1**	**1.0**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**3.2**	**JM-03**	**4.1**	**1.0**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**6.8**		**4.1**	**1.5**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**4.4**	**M-03**	**4.1**	**1.0**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**6.0**	**M-03**	**4.1**	**1.0**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**1.2**	**JM-03**	**4.1**	**1.0**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**10**		**4.1**	**1.0**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**4.5**		**4.1**	**1.0**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**8.4**	**M-03**	**4.1**	**1.0**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	236	50-150
13C2_6:2FTS	N	223	50-150
13C2_8:2FTS	N	156	50-150
13C2_PFDoA		91	50-150
13C2_PFTeDA		97	50-150
13C3_PFBS		98	50-150
13C3_PFHxS		104	50-150
13C3-HFPO-DA		80	50-150
13C4_PFBA		64	50-150
13C4_PFHpA		89	50-150
13C5_PFHxA		93	50-150
13C5_PFPeA		88	50-150
13C6_PFDA		106	50-150
13C7_PFUdA		107	50-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**
Laboratory ID: **ZD11029-006**
Description: **P2-MH-2_041024**
Matrix: **Aqueous**
Date Sampled: **04/10/2024 1135**
Project Name: **RACER Lansing**
Date Received: **04/11/2024**
Project Number: **30214036.0370B**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		109	50-150
13C8_PFOS		87	50-150
13C8_PFOSA		101	50-150
13C9_PFNA		106	50-150
d5-EtFOSAA		111	50-150
d3-MeFOSAA		111	50-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZD11029-007**

Description: **P2-MH-W_041024** Matrix: **Aqueous**

Date Sampled: **04/10/2024 1205** Project Name: **RACER Lansing**

Date Received: **04/11/2024** Project Number: **30214036.0370B**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	04/24/2024 1859	NRP	04/23/2024 1125	10508

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		8.3	2.1	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		8.3	2.1	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		8.3	2.1	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		8.3	2.1	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	8.3	2.1	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		8.3	2.1	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		8.3	2.1	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		8.3	2.1	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		8.3	2.1	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**1.3**	**JM-03**	**4.1**	**1.0**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**3.5**	**J**	**4.1**	**1.5**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		4.1	1.0	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	176	50-150
13C2_6:2FTS		118	50-150
13C2_8:2FTS		98	50-150
13C2_PFDoA		86	50-150
13C2_PFTeDA		83	50-150
13C3_PFBS		95	50-150
13C3_PFHxS		106	50-150
13C3-HFPO-DA		95	50-150
13C4_PFBA		66	50-150
13C4_PFHpA		91	50-150
13C5_PFHxA		99	50-150
13C5_PFPeA		94	50-150
13C6_PFDA		84	50-150
13C7_PFUdA		92	50-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**		Laboratory ID: **ZD11029-007**
Description: **P2-MH-W_041024**		Matrix: **Aqueous**
Date Sampled: **04/10/2024 1205**	Project Name: **RACER Lansing**	
Date Received: **04/11/2024**	Project Number: **30214036.0370B**	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		104	50-150
13C8_PFOS		84	50-150
13C8_PFOSA		92	50-150
13C9_PFNA		99	50-150
d5-EtFOSAA		93	50-150
d3-MeFOSAA		93	50-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
ND = Not detected at or above the DL	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis			S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZD11029-008**

Description: **FB-01_041024** Matrix: **Aqueous**

Date Sampled: **04/10/2024 1240** Project Name: **RACER Lansing**

Date Received: **04/11/2024** Project Number: **30214036.0370B**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	04/26/2024 1439	NRP	04/25/2024 1228	10666

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		8.7	2.2	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		8.7	2.2	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		8.7	2.2	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		8.7	2.2	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		8.7	2.2	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		8.7	2.2	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		8.7	2.2	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		8.7	2.2	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		8.7	2.2	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		4.3	1.1	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		4.3	1.1	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		4.3	1.1	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		4.3	1.1	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		4.3	1.1	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		4.3	1.1	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		4.3	1.1	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		4.3	1.6	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		4.3	1.1	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		4.3	1.1	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		4.3	1.1	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		4.3	1.1	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		4.3	1.1	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		4.3	1.1	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		4.3	1.1	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		4.3	1.1	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		4.3	1.1	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		4.3	1.1	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		4.3	1.1	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		105	50-150
13C2_6:2FTS		101	50-150
13C2_8:2FTS		86	50-150
13C2_PFDoA		93	50-150
13C2_PFTeDA		120	50-150
13C3_PFBS		102	50-150
13C3_PFHxS		97	50-150
13C3-HFPO-DA		100	50-150
13C4_PFBA		106	50-150
13C4_PFHpA		109	50-150
13C5_PFHxA		103	50-150
13C5_PFPeA		108	50-150
13C6_PFDA		103	50-150
13C7_PFUdA		99	50-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**		Laboratory ID: **ZD11029-008**
Description: **FB-01_041024**		Matrix: **Aqueous**
Date Sampled: **04/10/2024 1240**	Project Name: **RACER Lansing**	
Date Received: **04/11/2024**	Project Number: **30214036.0370B**	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		107	50-150
13C8_PFOS		97	50-150
13C8_PFOSA		85	50-150
13C9_PFNA		91	50-150
d5-EtFOSAA		102	50-150
d3-MeFOSAA		95	50-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
ND = Not detected at or above the DL	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis			S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZD11029-009**

Description: **EB-01_041024** Matrix: **Aqueous**

Date Sampled: **04/10/2024 1245** Project Name: **RACER Lansing**

Date Received: **04/11/2024** Project Number: **30214036.0370B**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	04/26/2024 1511	NRP	04/25/2024 1228	10666

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.9	2.0	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.9	2.0	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.9	2.0	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.9	2.0	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.9	2.0	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.9	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.9	2.0	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.9	2.0	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.9	2.0	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.9	0.98	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.9	0.98	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.9	0.98	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.9	0.98	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.9	0.98	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.9	0.98	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.9	0.98	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		3.9	1.4	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.9	0.98	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.9	0.98	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.9	0.98	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.9	0.98	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.9	0.98	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.9	0.98	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.9	0.98	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.9	0.98	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.9	0.98	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.9	0.98	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.9	0.98	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		119	50-150
13C2_6:2FTS		107	50-150
13C2_8:2FTS		104	50-150
13C2_PFDoA		95	50-150
13C2_PFTeDA		113	50-150
13C3_PFBS		99	50-150
13C3_PFHxS		103	50-150
13C3-HFPO-DA		102	50-150
13C4_PFBA		95	50-150
13C4_PFHpA		109	50-150
13C5_PFHxA		105	50-150
13C5_PFPeA		109	50-150
13C6_PFDA		112	50-150
13C7_PFUdA		101	50-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**		Laboratory ID: **ZD11029-009**
Description: **EB-01_041024**		Matrix: **Aqueous**
Date Sampled: **04/10/2024 1245**	Project Name: **RACER Lansing**	
Date Received: **04/11/2024**	Project Number: **30214036.0370B**	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		108	50-150
13C8_PFOS		95	50-150
13C8_PFOSA		92	50-150
13C9_PFNA		100	50-150
d5-EtFOSAA		100	50-150
d3-MeFOSAA		98	50-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
ND = Not detected at or above the DL	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis			S = MS/MSD failure

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QC Summary

PFAS by LC/MS/MS - MB

Sample ID: ZQ10508-001
Batch: 10508
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 04/23/2024 1125

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
9Cl-PF3ONS	ND		1	8.0	2.0	ng/L	04/24/2024 1412
11Cl-PF3OUdS	ND		1	8.0	2.0	ng/L	04/24/2024 1412
8:2 FTS	ND		1	8.0	2.0	ng/L	04/24/2024 1412
6:2 FTS	ND		1	8.0	2.0	ng/L	04/24/2024 1412
4:2 FTS	ND		1	8.0	2.0	ng/L	04/24/2024 1412
GenX	ND		1	8.0	2.0	ng/L	04/24/2024 1412
ADONA	ND		1	8.0	2.0	ng/L	04/24/2024 1412
EtFOSAA	ND		1	8.0	2.0	ng/L	04/24/2024 1412
MeFOSAA	ND		1	8.0	2.0	ng/L	04/24/2024 1412
PFBS	ND		1	4.0	1.0	ng/L	04/24/2024 1412
PFDS	ND		1	4.0	1.0	ng/L	04/24/2024 1412
PFHpS	ND		1	4.0	1.0	ng/L	04/24/2024 1412
PFNS	ND		1	4.0	1.0	ng/L	04/24/2024 1412
PFOSA	ND		1	4.0	1.0	ng/L	04/24/2024 1412
PFPeS	ND		1	4.0	1.0	ng/L	04/24/2024 1412
PFHxS	ND		1	4.0	1.0	ng/L	04/24/2024 1412
PFBA	ND		1	4.0	1.5	ng/L	04/24/2024 1412
PFDA	ND		1	4.0	1.0	ng/L	04/24/2024 1412
PFDoA	ND		1	4.0	1.0	ng/L	04/24/2024 1412
PFHpA	ND		1	4.0	1.0	ng/L	04/24/2024 1412
PFHxA	ND		1	4.0	1.0	ng/L	04/24/2024 1412
PFNA	ND		1	4.0	1.0	ng/L	04/24/2024 1412
PFOA	ND		1	4.0	1.0	ng/L	04/24/2024 1412
PFPeA	ND		1	4.0	1.0	ng/L	04/24/2024 1412
PFTeDA	ND		1	4.0	1.0	ng/L	04/24/2024 1412
PFTrDA	ND		1	4.0	1.0	ng/L	04/24/2024 1412
PFUdA	ND		1	4.0	1.0	ng/L	04/24/2024 1412
PFOS	ND		1	4.0	1.0	ng/L	04/24/2024 1412

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		98	50-150
13C2_6:2FTS		113	50-150
13C2_8:2FTS		104	50-150
13C2_PFDoA		99	50-150
13C2_PFTeDA		100	50-150
13C3_PFBS		101	50-150
13C3_PFHxS		115	50-150
13C3-HFPO-DA		95	50-150
13C4_PFBA		108	50-150
13C4_PFHpA		105	50-150
13C5_PFHxA		102	50-150
13C5_PFPeA		102	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: ZQ10508-001
Batch: 10508
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 04/23/2024 1125

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		99	50-150
13C7_PFUdA		97	50-150
13C8_PFOA		108	50-150
13C8_PFOS		93	50-150
13C8_PFOSA		102	50-150
13C9_PFNA		99	50-150
d5-EtFOSAA		113	50-150
d3-MeFOSAA		100	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ10508-002
Batch: 10508
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 04/23/2024 1125

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	14		1	93	50-150	04/24/2024 1423
11Cl-PF3OUdS	15	13		1	85	50-150	04/24/2024 1423
8:2 FTS	15	18		1	119	67-138	04/24/2024 1423
6:2 FTS	15	15		1	100	64-140	04/24/2024 1423
4:2 FTS	15	13		1	87	63-143	04/24/2024 1423
GenX	32	32		1	99	50-150	04/24/2024 1423
ADONA	15	15		1	101	50-150	04/24/2024 1423
EtFOSAA	16	15	M-03	1	96	61-135	04/24/2024 1423
MeFOSAA	16	17	M-03	1	103	65-136	04/24/2024 1423
PFBS	14	15		1	104	72-130	04/24/2024 1423
PFDS	15	14		1	93	53-142	04/24/2024 1423
PFHpS	15	15		1	98	69-134	04/24/2024 1423
PFNS	15	14		1	94	69-127	04/24/2024 1423
PFOSA	16	15		1	94	67-137	04/24/2024 1423
PFPeS	15	15		1	97	71-127	04/24/2024 1423
PFHxS	15	12		1	86	68-131	04/24/2024 1423
PFBA	16	14		1	89	73-129	04/24/2024 1423
PFDA	16	15		1	93	71-129	04/24/2024 1423
PFDoA	16	15		1	96	72-134	04/24/2024 1423
PFHpA	16	15		1	92	72-130	04/24/2024 1423
PFHxA	16	15		1	91	72-129	04/24/2024 1423
PFNA	16	15		1	93	69-130	04/24/2024 1423
PFOA	16	15		1	93	71-133	04/24/2024 1423
PFPeA	16	15		1	94	72-129	04/24/2024 1423
PFTeDA	16	15		1	96	71-132	04/24/2024 1423
PFTrDA	16	15		1	97	65-144	04/24/2024 1423
PFUdA	16	16		1	100	69-133	04/24/2024 1423
PFOS	15	13		1	90	65-140	04/24/2024 1423

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		111	50-150
13C2_6:2FTS		99	50-150
13C2_8:2FTS		104	50-150
13C2_PFDoA		94	50-150
13C2_PFTeDA		100	50-150
13C3_PFBS		101	50-150
13C3_PFHxS		112	50-150
13C3-HFPO-DA		95	50-150
13C4_PFBA		105	50-150
13C4_PFHpA		101	50-150
13C5_PFHxA		93	50-150
13C5_PFPeA		100	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ10508-002
Batch: 10508
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 04/23/2024 1125

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		92	50-150
13C7_PFUdA		98	50-150
13C8_PFOA		101	50-150
13C8_PFOS		91	50-150
13C8_PFOSA		100	50-150
13C9_PFNA		99	50-150
d5-EtFOSAA		95	50-150
d3-MeFOSAA		92	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCSD

Sample ID: ZQ10508-003
Batch: 10508
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 04/23/2024 1125

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
9Cl-PF3ONS	15	14		1	91	1.8	50-150	30	04/24/2024 1433
11Cl-PF3OUdS	15	12		1	83	2.9	50-150	30	04/24/2024 1433
8:2 FTS	15	17		1	109	8.3	67-138	30	04/24/2024 1433
6:2 FTS	15	13		1	84	17	64-140	30	04/24/2024 1433
4:2 FTS	15	14		1	95	8.7	63-143	30	04/24/2024 1433
GenX	32	29		1	90	9.5	50-150	30	04/24/2024 1433
ADONA	15	16		1	107	6.3	50-150	30	04/24/2024 1433
EtFOSAA	16	16		1	103	6.6	61-135	30	04/24/2024 1433
MeFOSAA	16	14		1	86	18	65-136	30	04/24/2024 1433
PFBS	14	14		1	99	4.6	72-130	30	04/24/2024 1433
PFDS	15	14		1	90	3.2	53-142	30	04/24/2024 1433
PFHpS	15	14		1	93	5.4	69-134	30	04/24/2024 1433
PFNS	15	14		1	93	1.2	69-127	30	04/24/2024 1433
PFOSA	16	15		1	94	0.57	67-137	30	04/24/2024 1433
PFPeS	15	15		1	99	1.5	71-127	30	04/24/2024 1433
PFHxS	15	13		1	91	6.4	68-131	30	04/24/2024 1433
PFBA	16	13	M-03	1	84	5.6	73-129	30	04/24/2024 1433
PFDA	16	13		1	82	13	71-129	30	04/24/2024 1433
PFDoA	16	16		1	99	2.4	72-134	30	04/24/2024 1433
PFHpA	16	15		1	96	5.0	72-130	30	04/24/2024 1433
PFHxA	16	13		1	83	9.4	72-129	30	04/24/2024 1433
PFNA	16	15		1	96	2.9	69-130	30	04/24/2024 1433
PFOA	16	14		1	85	9.2	71-133	30	04/24/2024 1433
PFPeA	16	15		1	94	0.48	72-129	30	04/24/2024 1433
PFTeDA	16	14		1	86	11	71-132	30	04/24/2024 1433
PFTrDA	16	13		1	83	15	65-144	30	04/24/2024 1433
PFUdA	16	15		1	91	8.5	69-133	30	04/24/2024 1433
PFOS	15	12	M-03	1	83	8.1	65-140	30	04/24/2024 1433

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		103	50-150
13C2_6:2FTS		103	50-150
13C2_8:2FTS		100	50-150
13C2_PFDoA		99	50-150
13C2_PFTeDA		102	50-150
13C3_PFBS		98	50-150
13C3_PFHxS		106	50-150
13C3-HFPO-DA		98	50-150
13C4_PFBA		105	50-150
13C4_PFHpA		104	50-150
13C5_PFHxA		100	50-150
13C5_PFPeA		101	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCSD

Sample ID: ZQ10508-003
Batch: 10508
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 04/23/2024 1125

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		95	50-150
13C7_PFUdA		97	50-150
13C8_PFOA		115	50-150
13C8_PFOS		95	50-150
13C8_PFOSA		90	50-150
13C9_PFNA		98	50-150
d5-EtFOSAA		103	50-150
d3-MeFOSAA		95	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: ZQ10666-001
Batch: 10666
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 04/25/2024 1228

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
9Cl-PF3ONS	ND		1	8.0	2.0	ng/L	04/26/2024 1314
11Cl-PF3OUdS	ND		1	8.0	2.0	ng/L	04/26/2024 1314
8:2 FTS	ND		1	8.0	2.0	ng/L	04/26/2024 1314
6:2 FTS	ND		1	8.0	2.0	ng/L	04/26/2024 1314
4:2 FTS	ND		1	8.0	2.0	ng/L	04/26/2024 1314
GenX	ND		1	8.0	2.0	ng/L	04/26/2024 1314
ADONA	ND		1	8.0	2.0	ng/L	04/26/2024 1314
EtFOSAA	ND		1	8.0	2.0	ng/L	04/26/2024 1314
MeFOSAA	ND		1	8.0	2.0	ng/L	04/26/2024 1314
PFBS	ND		1	4.0	1.0	ng/L	04/26/2024 1314
PFDS	ND		1	4.0	1.0	ng/L	04/26/2024 1314
PFHpS	ND		1	4.0	1.0	ng/L	04/26/2024 1314
PFNS	ND		1	4.0	1.0	ng/L	04/26/2024 1314
PFOSA	ND		1	4.0	1.0	ng/L	04/26/2024 1314
PFPeS	ND		1	4.0	1.0	ng/L	04/26/2024 1314
PFHxS	ND		1	4.0	1.0	ng/L	04/26/2024 1314
PFBA	ND		1	4.0	1.5	ng/L	04/26/2024 1314
PFDA	ND		1	4.0	1.0	ng/L	04/26/2024 1314
PFDoA	ND		1	4.0	1.0	ng/L	04/26/2024 1314
PFHpA	ND		1	4.0	1.0	ng/L	04/26/2024 1314
PFHxA	ND		1	4.0	1.0	ng/L	04/26/2024 1314
PFNA	ND		1	4.0	1.0	ng/L	04/26/2024 1314
PFOA	ND		1	4.0	1.0	ng/L	04/26/2024 1314
PFPeA	ND		1	4.0	1.0	ng/L	04/26/2024 1314
PFTeDA	ND		1	4.0	1.0	ng/L	04/26/2024 1314
PFTrDA	ND		1	4.0	1.0	ng/L	04/26/2024 1314
PFUdA	ND		1	4.0	1.0	ng/L	04/26/2024 1314
PFOS	ND		1	4.0	1.0	ng/L	04/26/2024 1314

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		122	50-150
13C2_6:2FTS		92	50-150
13C2_8:2FTS		96	50-150
13C2_PFDoA		92	50-150
13C2_PFTeDA		122	50-150
13C3_PFBS		100	50-150
13C3_PFHxS		98	50-150
13C3-HFPO-DA		103	50-150
13C4_PFBA	M-03	105	50-150
13C4_PFHpA		106	50-150
13C5_PFHxA		108	50-150
13C5_PFPeA		109	50-150

LOQ = Limit of Quantitation
DL = Detection Limit

ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria

N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: ZQ10666-001
Batch: 10666
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 04/25/2024 1228

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		106	50-150
13C7_PFUdA		113	50-150
13C8_PFOA		97	50-150
13C8_PFOS		95	50-150
13C8_PFOSA		96	50-150
13C9_PFNA		98	50-150
d5-EtFOSAA		98	50-150
d3-MeFOSAA		99	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ10666-002
Batch: 10666
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 04/25/2024 1228

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	14		1	97	50-150	04/26/2024 1325
11Cl-PF3OUdS	15	14		1	93	50-150	04/26/2024 1325
8:2 FTS	15	16		1	108	67-138	04/26/2024 1325
6:2 FTS	15	16		1	105	64-140	04/26/2024 1325
4:2 FTS	15	15		1	98	63-143	04/26/2024 1325
GenX	32	32		1	101	50-150	04/26/2024 1325
ADONA	15	15		1	100	50-150	04/26/2024 1325
EtFOSAA	16	14	M-03	1	90	61-135	04/26/2024 1325
MeFOSAA	16	15		1	91	65-136	04/26/2024 1325
PFBS	14	16		1	113	72-130	04/26/2024 1325
PFDS	15	17		1	109	53-142	04/26/2024 1325
PFHpS	15	16		1	108	69-134	04/26/2024 1325
PFNS	15	16		1	106	69-127	04/26/2024 1325
PFOSA	16	17	M-03	1	108	67-137	04/26/2024 1325
PFPeS	15	15		1	101	71-127	04/26/2024 1325
PFHxS	15	14		1	95	68-131	04/26/2024 1325
PFBA	16	14		1	90	73-129	04/26/2024 1325
PFDA	16	16		1	102	71-129	04/26/2024 1325
PFDoA	16	17		1	103	72-134	04/26/2024 1325
PFHpA	16	15		1	93	72-130	04/26/2024 1325
PFHxA	16	17		1	109	72-129	04/26/2024 1325
PFNA	16	16		1	103	69-130	04/26/2024 1325
PFOA	16	16	M-03	1	99	71-133	04/26/2024 1325
PFPeA	16	16		1	101	72-129	04/26/2024 1325
PFTeDA	16	16		1	97	71-132	04/26/2024 1325
PFTrDA	16	15		1	92	65-144	04/26/2024 1325
PFUdA	16	16		1	101	69-133	04/26/2024 1325
PFOS	15	15		1	102	65-140	04/26/2024 1325

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		124	50-150
13C2_6:2FTS		96	50-150
13C2_8:2FTS		99	50-150
13C2_PFDoA		104	50-150
13C2_PFTeDA		122	50-150
13C3_PFBS		101	50-150
13C3_PFHxS		99	50-150
13C3-HFPO-DA		104	50-150
13C4_PFBA		110	50-150
13C4_PFHpA		108	50-150
13C5_PFHxA		94	50-150
13C5_PFPeA		110	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ10666-002
Batch: 10666
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 04/25/2024 1228

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		108	50-150
13C7_PFUdA		105	50-150
13C8_PFOA		103	50-150
13C8_PFOS		94	50-150
13C8_PFOSA		96	50-150
13C9_PFNA		103	50-150
d5-EtFOSAA		102	50-150
d3-MeFOSAA		104	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID: ZD11029-001MS
Batch: 10666
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 04/25/2024 1228

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	ND	15	13		1	88	50-150	04/26/2024 1418
11Cl-PF3OUdS	ND	15	13		1	83	50-150	04/26/2024 1418
8:2 FTS	ND	16	17		1	108	67-138	04/26/2024 1418
6:2 FTS	ND	15	18		1	116	64-140	04/26/2024 1418
4:2 FTS	ND	15	13		1	89	63-143	04/26/2024 1418
GenX	ND	32	32		1	99	50-150	04/26/2024 1418
ADONA	ND	15	15		1	101	50-150	04/26/2024 1418
EtFOSAA	ND	16	13		1	82	61-135	04/26/2024 1418
MeFOSAA	ND	16	16		1	99	65-136	04/26/2024 1418
PFBS	3.2	14	18		1	100	72-130	04/26/2024 1418
PFDS	ND	16	13		1	84	53-142	04/26/2024 1418
PFHpS	ND	15	14		1	91	69-134	04/26/2024 1418
PFNS	ND	16	13		1	84	69-127	04/26/2024 1418
PFOSA	ND	16	15	M-03	1	94	67-137	04/26/2024 1418
PFPeS	ND	15	16		1	105	71-127	04/26/2024 1418
PFHxS	3.5	15	15		1	80	68-131	04/26/2024 1418
PFBA	6.9	16	22		1	93	73-129	04/26/2024 1418
PFDA	ND	16	16		1	97	71-129	04/26/2024 1418
PFDoA	ND	16	17		1	102	72-134	04/26/2024 1418
PFHpA	2.4	16	19		1	100	72-130	04/26/2024 1418
PFHxA	ND	16	17		1	106	72-129	04/26/2024 1418
PFNA	ND	16	16		1	100	69-130	04/26/2024 1418
PFOA	5.1	16	19		1	86	71-133	04/26/2024 1418
PFPeA	4.5	16	20		1	93	72-129	04/26/2024 1418
PFTeDA	ND	16	15		1	91	71-132	04/26/2024 1418
PFTrDA	ND	16	14		1	88	65-144	04/26/2024 1418
PFUdA	ND	16	20		1	121	69-133	04/26/2024 1418
PFOS	2.5	15	15		1	82	65-140	04/26/2024 1418

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS	N	305	50-150
13C2_6:2FTS		150	50-150
13C2_8:2FTS		110	50-150
13C2_PFDoA		92	50-150
13C2_PFTeDA		120	50-150
13C3_PFBS		89	50-150
13C3_PFHxS		97	50-150
13C3-HFPO-DA		91	50-150
13C4_PFBA		59	50-150
13C4_PFHpA		91	50-150
13C5_PFHxA		107	50-150
13C5_PFPeA		92	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID: ZD11029-001MS
Batch: 10666
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 04/25/2024 1228

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		106	50-150
13C7_PFUdA		87	50-150
13C8_PFOA		104	50-150
13C8_PFOS		98	50-150
13C8_PFOSA		95	50-150
13C9_PFNA		94	50-150
d5-EtFOSAA		101	50-150
d3-MeFOSAA		103	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MSD

Sample ID: ZD11029-001MD
Batch: 10666
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 04/25/2024 1228

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
9Cl-PF3ONS	ND	14	15		1	103	10	50-150	30	04/26/2024 1428
11Cl-PF3OUdS	ND	15	13		1	88	1.4	50-150	30	04/26/2024 1428
8:2 FTS	ND	15	16		1	106	7.0	67-138	30	04/26/2024 1428
6:2 FTS	ND	15	13	+	1	87	34	64-140	30	04/26/2024 1428
4:2 FTS	ND	14	15		1	102	8.5	63-143	30	04/26/2024 1428
GenX	ND	31	33		1	108	3.3	50-150	30	04/26/2024 1428
ADONA	ND	15	14		1	99	7.1	50-150	30	04/26/2024 1428
EtFOSAA	ND	15	16	M-03	1	101	15	61-135	30	04/26/2024 1428
MeFOSAA	ND	15	16	M-03	1	102	2.1	65-136	30	04/26/2024 1428
PFBS	3.2	14	18		1	107	1.2	72-130	30	04/26/2024 1428
PFDS	ND	15	13		1	90	1.8	53-142	30	04/26/2024 1428
PFHpS	ND	15	15		1	102	6.1	69-134	30	04/26/2024 1428
PFNS	ND	15	14		1	95	7.4	69-127	30	04/26/2024 1428
PFOSA	ND	15	14		1	93	5.4	67-137	30	04/26/2024 1428
PFPeS	ND	14	15		1	104	6.4	71-127	30	04/26/2024 1428
PFHxS	3.5	14	15		1	83	1.0	68-131	30	04/26/2024 1428
PFBA	6.9	15	22		1	96	1.8	73-129	30	04/26/2024 1428
PFDA	ND	15	16		1	105	2.5	71-129	30	04/26/2024 1428
PFDoA	ND	15	16		1	106	0.65	72-134	30	04/26/2024 1428
PFHpA	2.4	15	18		1	98	5.4	72-130	30	04/26/2024 1428
PFHxA	ND	15	19		1	120	7.5	72-129	30	04/26/2024 1428
PFNA	ND	15	14		1	92	13	69-130	30	04/26/2024 1428
PFOA	5.1	15	21	M-03	1	101	7.6	71-133	30	04/26/2024 1428
PFPeA	4.5	15	18		1	88	7.7	72-129	30	04/26/2024 1428
PFTeDA	ND	15	15		1	100	4.9	71-132	30	04/26/2024 1428
PFTrDA	ND	15	16		1	101	9.0	65-144	30	04/26/2024 1428
PFUdA	ND	15	16		1	102	22	69-133	30	04/26/2024 1428
PFOS	2.5	14	17		1	100	12	65-140	30	04/26/2024 1428

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS	N	252	50-150
13C2_6:2FTS	N	163	50-150
13C2_8:2FTS		102	50-150
13C2_PFDoA		90	50-150
13C2_PFTeDA		113	50-150
13C3_PFBS		89	50-150
13C3_PFHxS		95	50-150
13C3-HFPO-DA		89	50-150
13C4_PFBA		61	50-150
13C4_PFHpA		89	50-150
13C5_PFHxA		97	50-150
13C5_PFPeA		94	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MSD

Sample ID: ZD11029-001MD
Batch: 10666
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 04/25/2024 1228

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		100	50-150
13C7_PFUdA		92	50-150
13C8_PFOA		100	50-150
13C8_PFOS		89	50-150
13C8_PFOSA		95	50-150
13C9_PFNA		103	50-150
d5-EtFOSAA		96	50-150
d3-MeFOSAA		99	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Chain of Custody
and
Miscellaneous Documents

Pace Analytical®

PACE ANALYTICAL SERVICES, LLC
106 Vantage Point Drive • West Columbia, SC 29172
Telephone No. 803-791-9700 Fax No. 803-791-9111
www.pacelabs.com

Number 154081

Client: Arcadis	Report to Contact: Marina Samp	Telephone No. / E-mail: 248-994-2318 / Marina.Samp@arcadis.com	Quote No.
Address: 28550 Cabot Dr. Ste 500	Sampler's Signature: xAnyssa Mardich	Analysis (Attach list if more space is needed)	Page 1 of 1
City: Novi State: MI Zip Code: 48377	Printed Name: Anyssa Mardich		
Project Name: RACER Lansing PFAS Delineation			
Project No.: 50214032.037DB	P.O. No.		

Sample ID / Description (Containers for each sample may be combined on one line.)	Collection Date(s)	Collection Time (Military)	Grab (G) or Composite (C)	Matrix: Air / Solid / Wipe / Liquid	No. of Containers by Preservative Type: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Other (Specify)	PFAS EPA 537M Modified 28	Remarks / Cooler I.D.
MichAve-MH-3_041024	4/10/2024	0905	G	X	6							6	MS/MSD
Verlinden-MH-5-041024	4/10/2024	0925	G	X	2							2	
Osborn-MH-1_041024	4/10/2024	0950	G	X	2							2	Please provide results & RC along w/ EDD for all samples
Dup-01_041024	4/10/2024	—	G	X	2							2	
P3-MH-284_041024	4/10/2024	1050	G	X	2							2	
P2-MH-2_041024	4/10/2024	1135	G	X	2							2	
P2-MH-W_041024	4/10/2024	1205	G	X	2							2	
FB-01_041024	4/10/2024	1240	G	X	2							2	
EB-01_041024	4/10/2024	1245	G	X	2							2	

ZD11029

KESZ

Turn Around Time Required (Prior lab approval required for expedited TAT.): ☑ Standard ☐ Rush (Specify)

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab

Possible Hazard Identification: ☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison ☐ Unknown

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished by: Anyssa Mardich/Arcadis	4/10/24	1500	1. Received by: FedEx	4/10/24	1500
2. Relinquished by	Date	Time	2. Received by	Date	Time
3. Relinquished by	Date	Time 1024	3. Received by	Date	Time
4. Relinquished by: FEDEX	Date 4/11/24	Time 1024 1025	4. Laboratory received by	Date 4/11/24	Time 1025 1024

Note: All samples are retained for four weeks from receipt unless other arrangements are made.

LAB USE ONLY
Received on Ice (Circle): (Yes) No Ice Pack — Receipt Temp: 2.3 °C — Temp Blank: ☐ Y ☒ N

DISTRIBUTION: WHITE & YELLOW-Return to laboratory with Sample(s); PINK-Field/Client Copy

Document Number: MEGSN2-01

PACE ANALYTICAL SERVICES, LLC

DC#_Title: ENV-FRM-WCOL-0286 v02_Samples Receipt Checklist (SRC)
Effective Date: 8/2/2022

Sample Receipt Checklist (SRC)

Client: ARCADIS Cooler Inspected by/date: SCJ 14/11/24 Lot #: 2D11029

Means of receipt: ☐ Pace ☐ Client ☐ UPS ☑ FedEx ☐ Other: _____

☑ Yes	☐ No		1. Were custody seals present on the cooler?
☒ Yes	☐ No	☐ NA	2. If custody seals were present, were they intact and unbroken?

pH Strip ID: NA Chlorine Strip ID: NA Tested by: NA

Original temperature upon receipt / Derived (Corrected) temperature upon receipt: %Solid Snap-Cup ID: NA

2.5 / 2.3 °C NA / NA °C NA / NA °C NA / NA °C

Method: ☐ Temperature Blank ☑ Against Bottles IR Gun ID: 8 IR Gun Correction Factor: 0 °C

Method of coolant: ☒ Wet Ice ☐ Ice Packs ☐ Dry Ice ☐ None

☒ Yes	☐ No	☐ NA	3. Were all coolers received at or below 6.0°C? If no, was Project Manager notified? PM was Notified by: phone / email / face-to-face (circle one).
☒ Yes	☐ No	☐ NA	4. Is the commercial courier's packing slip attached to this form?
☒ Yes	☐ No		5. Were proper custody procedures (relinquished/received) followed?
☒ Yes	☐ No		6. Were sample IDs listed on the COC and all sample containers?
☒ Yes	☐ No		7. Was collection date & time listed on the COC and all sample containers?
☒ Yes	☐ No		8. Did all container label information (ID, date, time) agree with the COC?
☒ Yes	☐ No		9. Were tests to be performed listed on the COC?
☒ Yes	☐ No		10. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)? _____
☒ Yes	☐ No		11. Was adequate sample volume available?
☒ Yes	☐ No		12. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
☒ Yes	☐ No		13. Were all samples containers accounted for? (No missing/excess)
☐ Yes	☐ No	☒ NA	14. Were VOA, 8015C and RSK-175 samples free of bubbles >"pea-size" (¼" or 6mm in diameter) in any of the VOA vials?
☐ Yes	☐ No	☒ NA	15. Were all DRO/metals/nutrient samples received at a pH of < 2?
☐ Yes	☐ No	☒ NA	16. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
☐ Yes	☐ No	☒ NA	17. Were all applicable NH_3/TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?
☒ Yes	☐ No	☐ NA	18. Was the quote number listed on the container label? If yes, Quote # 25015

Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)

Sample(s) NA were received incorrectly preserved and were adjusted accordingly in sample receiving with NA mL of circle one: H2SO4, HNO3, HCl, NaOH using SR # NA.
Time of preservation NA. If more than one preservative is needed, please note in the comments below.

Sample(s) NA were received with bubbles >6 mm in diameter.

Samples(s) NA were received with TRC > 0.5 mg/L (If #19 is *no*) and were adjusted accordingly in sample receiving with sodium thiosulfate ($Na_2S_2O_3$) with Unique ID: NA.

Comments:

Qualtrax ID: 56360

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

Report of Analysis

Arcadis U.S., Inc.
630 Plaza Drive
Suite 600
Highlands Ranch, CO 80129
Attention: Marina Samp

Project Name: RACER

Project Number: 30214036.0370B

Lot Number:**ZG03024**

Date Completed:08/09/2024

08/12/2024 4:09 PM
Approved and released by:
Project Manager II: **Kathy E. Smith**





The electronic signature above is the equivalent of a handwritten signature.
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Pace Analytical Services, LLC (*formerly Shealy Environmental Services, Inc.*)
106 Vantage Point Drive West Columbia, SC 29172
Tel: 803-791-9700 Fax: 803-791-9111 www.pacelabs.com

Case Narrative
Arcadis U.S., Inc.
Lot Number: ZG03024

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.
Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved The NELAC Institute (TNI) standards, the Pace Analytical Services, LLC ("Pace") Laboratory Quality Manual, standard operating procedures (SOPs), and Pace policies. Additionally, the DoD QSM version 5.4 has been followed for these samples, and specifically Table B-15 was followed for all PFAS samples. Any exceptions to the TNI standards, the Laboratory Quality Manual, SOPs, the DoD QSM, or policies are qualified on the results page or discussed below.

All QC associated with these samples were compliant with DOD QSM 5.4 table B-15 and our PFAS SOP.
Correction factors (CF) are used to calculate the original sample concentration. The CF is the inverse of the concentration factor (sample volume / extract final volume) times the dilution factor (DF). The CF is calculated as follows:

CF = DF * FV / Vo
FV is volume of extract (mL)
Vo is initial sample volume (mL)
DF is dilution factor. For undiluted analysis, DF = 1.

Sample concentration for aqueous samples:
Concentration (ng/L) = Cs*CF,

$$C_s = \frac{\left(\frac{(A_s x C_{is})}{A_{is}}\right) - B}{M1}$$

Where

C_s is on column concentration of target analyte in the sample (ng/L)
C_{is} is concentration of internal standard in the sample (ng/L)
A_s is peak response of target analyte in the sample
A_{is} is peak response of internal standard in the sample
M1 is the average RF from ICAL or the slope from linear regression ICAL
B is the y-intercept from the ICAL

Pace is a DoD/DOE accredited laboratory; however, the following analyses are currently not listed on our DoD/DOE scope of accreditation: Drinking Water: pH EPA 150.1, Turbidity EPA 180.1, Metals EPA 200.7 & 200.8, Mercury EPA 245.1, Anions EPA 300.0, Cyanide EPA 335.4, Nitrates EPA 353.2, Orthophosphate & Phosphorus EPA 365.1, EDB/DBCP EPA 504.1, HPC SIMPLATE, Color SM 2120 B-2011, Alkalinity SM 2320 B-2011, Specific Conductance SM 2510 B-2011, Residue-filterable (TDS) SM 2540 C, Calcium Hardness (CaCO2) SM 3500-Ca B-2011, TRC SM 4500 Cl G-2011, pH SM 4500 H=B-2011, E.Coli, Total Coliform. Non-Potable Water: Metals EPA 200.7, Strontium EPA 200.8, Chlorate EPA 300.0, Cyanide EPA 335.4, Phenolics EPA 420.4, 2-Methyl-4,6-Dinitrophenol EPA 625.1, Propane RSK-

175, Specific Conductance SM 2510 B-2011, Salinity SM2520 B, Residue- total SM 2540 B, Sulfite SM 4500 SO32- B-2011, Amenable Cyanide SM 4500-CN- G-2011, BOD & CBOD SM 5210 B, MBAS SM 5540 C-2011, Boron & Titanium SW-846 6010D, Boron, Molybdenum, & Titanium SW-846 6020B, Alcohols & Glycols SW-846 8015C, Pentachlorophenol SW-846 8151A, Ethyl Acetate, Hexane, & n-Hexane SW-846 8260D, SVOC 1,4-Dioxane, 4-Dimethyl aminoazobenzene, 1,4-Naphthoquinone, 3,5-Dinitroaniline, PETN SW-846 8270E, Amenable Cyanide SW-846 9012B. Solid and Chemical Materials: Boron & Titanium SW-846 6010D, Molybdenum SW-846 6020B, Ethylene Glycol SW-846 8015B, Pentachlorophenol SW-846 8151A, Chloroprene SW-846 8260B, SVOC 1,4-Dioxane, 1,3,5-Trinitrobenzene, 1,4- Naphthoquinone, 1,4-Phenylenediamine, 2,4-Dinitrotoluene, 2,6-Dinitrotoluene, 3-Methylcholanthrene, 4-Aminobiphenyl, 4-Dimethyl aminoazobenzene, 4-Nitroquinoline-1-oxide, 7,12-Dimethylbenzo(a)anthracene, Chlorobenzilate, Diallate, Ethyl methanesulfonate, Isodrin, Isosafrole, Methyl methanesulfonate, n-Nitrosomethylethylamine, n-Nitrosomorpholine, n-Nitrosopiperidine, Piperonyl butoxide, Pronamide, Safrole, 3,5- Dinitroaniline, PETN SW-846 8270E, Oil & Grease SW-846 9071B.

Pace is a TNI accredited laboratory; however, the following analyses are currently not listed on our TNI scope of accreditation: E. coli and Total coliforms SM 9223 B-2004, Solid Chemical Material: TOC Walkley-Black, Biological Tissue: All, Non-Potable Water: SGT-HEM EPA 1664B, Silica EPA 200.7, Boron, Calcium, Silicon, Strontium EPA 200.8, Bicarbonate, Carbonate, and Hydroxide Alkalinity SM 2320 B-2011, SM 9221 C E-2006 & SM 9222D-2006, Strontium SW-846 6010D, VOC SM 6200 B-2011, Fecal Coliform Colilert-18. If you have any questions regarding this report, please contact the Pace Project Manager listed on the cover page.

Manual integration summaries are provided at the end of this report when applicable.

PFAS
Sample ZG03024-001 required centrifugation prior to extraction, due to excessive solids present in the samples. Centrifugation was performed following the PFAS Aqueous Centrifuge Protocol; samples were spiked with Surrogate (SUR; Extracted Internal Standard/EIS) and shaken vigorously before being poured into a conical bottle and centrifuged. The centrifuged aqueous sample was decanted back into the original sample bottle, off of the condensed solids remaining in the centrifuge bottle. Original sample bottle was rinsed as normal and centrifuge bottle was rinsed with 4mL of MeOH. Centrifuge bottle rinsate was added to the elution. Samples concentrated to <5mL and reconstituted to 5mL using MeOH by transfer pipet.

Surrogate recovery for the following sample was outside control limits: ZG03024-001. Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Surrogate recovery for the following sample was outside control limits: ZG03024-002. Re-extraction and/or re-analysis was performed outside of holding time and all data has been reported.

Surrogate recovery for the following samples was outside the upper control limit: ZG03024-003, ZG03024-004, ZG03024-005, ZG03024-006, ZG03024-007. These samples did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

The LCS associated with batch 15334 had 8:2 FTS recovered above the acceptance limits. This demonstrates a high bias on analytical results. There were no detections for this compound in the samples associated with this batch; therefore, data quality is not impacted.

Sample Summary

Arcadis U.S., Inc.

Lot Number: ZG03024

Project Name: RACER

Project Number: 30214036.0370B

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	MichAve-MH-3_070224	Aqueous	07/02/2024 0920	07/03/2024
002	Verlinden-MH-5_070224	Aqueous	07/02/2024 0940	07/03/2024
003	Osborn-MH-1_070224	Aqueous	07/02/2024 1005	07/03/2024
004	Dup-01_070224	Aqueous	07/02/2024	07/03/2024
005	P3-MH-284_070224	Aqueous	07/02/2024 1115	07/03/2024
006	P2-MH-2_070224	Aqueous	07/02/2024 1210	07/03/2024
007	P2-MH-W_070224	Aqueous	07/02/2024 1255	07/03/2024
008	FB-01_070224	Aqueous	07/02/2024 1307	07/03/2024
009	EB-01_070224	Aqueous	07/02/2024 1312	07/03/2024

(9 samples)

Detection Summary

Arcadis U.S., Inc.

Lot Number: ZG03024

Project Name: RACER

Project Number: 30214036.0370B

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	MichAve-MH-3_070224	Aqueous	PFHxS	PFAS by ID	7.0	M-03	ng/L	7
001	MichAve-MH-3_070224	Aqueous	PFBA	PFAS by ID	8.6	Q	ng/L	7
001	MichAve-MH-3_070224	Aqueous	PFHpA	PFAS by ID	4.6	M-03	ng/L	7
001	MichAve-MH-3_070224	Aqueous	PFHxA	PFAS by ID	5.1		ng/L	7
001	MichAve-MH-3_070224	Aqueous	PFOA	PFAS by ID	6.0		ng/L	7
001	MichAve-MH-3_070224	Aqueous	PFPeA	PFAS by ID	6.8	M-01	ng/L	7
001	MichAve-MH-3_070224	Aqueous	PFOS	PFAS by ID	4.8	M-03	ng/L	7
002	Verlinden-MH-5_070224	Aqueous	6:2 FTS	PFAS by ID	2.9	JQ	ng/L	9
002	Verlinden-MH-5_070224	Aqueous	PFHxS	PFAS by ID	1.9	JM-03	ng/L	9
002	Verlinden-MH-5_070224	Aqueous	PFDA	PFAS by ID	1.3	JM-06	ng/L	9
002	Verlinden-MH-5_070224	Aqueous	PFHpA	PFAS by ID	15	M-03	ng/L	9
002	Verlinden-MH-5_070224	Aqueous	PFHxA	PFAS by ID	20	M-03	ng/L	9
002	Verlinden-MH-5_070224	Aqueous	PFNA	PFAS by ID	3.5	J	ng/L	9
002	Verlinden-MH-5_070224	Aqueous	PFOA	PFAS by ID	29		ng/L	9
002	Verlinden-MH-5_070224	Aqueous	PFPeA	PFAS by ID	27		ng/L	9
002	Verlinden-MH-5_070224	Aqueous	PFOS	PFAS by ID	12	M-06	ng/L	9
002	Verlinden-MH-5_070224	Aqueous	PFBA	PFAS by ID	13	H	ng/L	11
003	Osborn-MH-1_070224	Aqueous	PFBS	PFAS by ID	2.2	JM-03	ng/L	13
003	Osborn-MH-1_070224	Aqueous	PFHxS	PFAS by ID	2.1	JM-03	ng/L	13
003	Osborn-MH-1_070224	Aqueous	PFBA	PFAS by ID	16	M-03	ng/L	13
003	Osborn-MH-1_070224	Aqueous	PFDA	PFAS by ID	5.1		ng/L	13
003	Osborn-MH-1_070224	Aqueous	PFHpA	PFAS by ID	14	M-03	ng/L	13
003	Osborn-MH-1_070224	Aqueous	PFHxA	PFAS by ID	14	M-03	ng/L	13
003	Osborn-MH-1_070224	Aqueous	PFNA	PFAS by ID	5.5		ng/L	13
003	Osborn-MH-1_070224	Aqueous	PFOA	PFAS by ID	30	M-03	ng/L	13
003	Osborn-MH-1_070224	Aqueous	PFPeA	PFAS by ID	18	M-03	ng/L	13
003	Osborn-MH-1_070224	Aqueous	PFOS	PFAS by ID	16	M-06	ng/L	13
004	Dup-01_070224	Aqueous	PFBS	PFAS by ID	1.7	JM-03	ng/L	15
004	Dup-01_070224	Aqueous	PFHxS	PFAS by ID	2.8	JM-03	ng/L	15
004	Dup-01_070224	Aqueous	PFBA	PFAS by ID	15	M-01	ng/L	15
004	Dup-01_070224	Aqueous	PFDA	PFAS by ID	4.4	M-03	ng/L	15
004	Dup-01_070224	Aqueous	PFHpA	PFAS by ID	14	M-03	ng/L	15
004	Dup-01_070224	Aqueous	PFHxA	PFAS by ID	17	M-01	ng/L	15
004	Dup-01_070224	Aqueous	PFNA	PFAS by ID	5.7		ng/L	15
004	Dup-01_070224	Aqueous	PFOA	PFAS by ID	29	M-03	ng/L	15
004	Dup-01_070224	Aqueous	PFPeA	PFAS by ID	18		ng/L	15
004	Dup-01_070224	Aqueous	PFOS	PFAS by ID	20	M-06	ng/L	15
005	P3-MH-284_070224	Aqueous	PFHxS	PFAS by ID	1.5	JM-03	ng/L	17
005	P3-MH-284_070224	Aqueous	PFBA	PFAS by ID	2.8	JM-03	ng/L	17
005	P3-MH-284_070224	Aqueous	PFOA	PFAS by ID	1.7	JM-03	ng/L	17
005	P3-MH-284_070224	Aqueous	PFOS	PFAS by ID	8.8	M-03	ng/L	17
006	P2-MH-2_070224	Aqueous	PFHxS	PFAS by ID	4.2	M-03	ng/L	19
006	P2-MH-2_070224	Aqueous	PFBA	PFAS by ID	10		ng/L	19

Detection Summary (Continued)

Lot Number: ZG03024

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
006	P2-MH-2_070224	Aqueous	PFDA	PFAS by ID	2.0	J	ng/L	19
006	P2-MH-2_070224	Aqueous	PFHpA	PFAS by ID	7.8	M-03	ng/L	19
006	P2-MH-2_070224	Aqueous	PFHxA	PFAS by ID	8.8	M-01	ng/L	19
006	P2-MH-2_070224	Aqueous	PFNA	PFAS by ID	2.5	J	ng/L	19
006	P2-MH-2_070224	Aqueous	PFOA	PFAS by ID	16		ng/L	19
006	P2-MH-2_070224	Aqueous	PFPeA	PFAS by ID	7.6		ng/L	19
006	P2-MH-2_070224	Aqueous	PFOS	PFAS by ID	19	M-06	ng/L	19
007	P2-MH-W_070224	Aqueous	PFHxS	PFAS by ID	1.7	JM-03	ng/L	21
007	P2-MH-W_070224	Aqueous	PFBA	PFAS by ID	3.6	JM-03	ng/L	21
007	P2-MH-W_070224	Aqueous	PFOA	PFAS by ID	2.2	JM-03	ng/L	21
007	P2-MH-W_070224	Aqueous	PFPeA	PFAS by ID	1.3	J	ng/L	21

(54 detections)

PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZG03024-001**

Description: **MichAve-MH-3_070224** Matrix: **Aqueous**

Date Sampled: **07/02/2024 0920** Project Name: **RACER**

Date Received: **07/03/2024** Project Number: **30214036.0370B**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	07/25/2024 1923	ARC2	07/23/2024 1216	14853

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		8.5	2.1	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		8.5	2.1	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		8.5	2.1	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		8.5	2.1	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	8.5	2.1	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		8.5	2.1	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		8.5	2.1	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		8.5	2.1	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		8.5	2.1	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**7.0**	**M-03**	**4.2**	**1.1**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**8.6**	**Q**	**4.2**	**1.5**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**4.6**	**M-03**	**4.2**	**1.1**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**5.1**		**4.2**	**1.1**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**6.0**		**4.2**	**1.1**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**6.8**	**M-01**	**4.2**	**1.1**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**4.8**	**M-03**	**4.2**	**1.1**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	219	50-150
13C2_6:2FTS		140	50-150
13C2_8:2FTS		128	50-150
13C2_PFDoA		68	50-150
13C2_PFTeDA		75	50-150
13C3_PFBS		72	50-150
13C3_PFHxS		67	50-150
13C3-HFPO-DA		56	50-150
13C4_PFBA	N	42	50-150
13C4_PFHpA		73	50-150
13C5_PFHxA		72	50-150
13C5_PFPeA		62	50-150
13C6_PFDA		73	50-150
13C7_PFUdA		86	50-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZG03024-001**

Description: **MichAve-MH-3_070224** Matrix: **Aqueous**

Date Sampled: **07/02/2024 0920** Project Name: **RACER**

Date Received: **07/03/2024** Project Number: **30214036.0370B**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		88	50-150
13C8_PFOS		79	50-150
13C8_PFOSA		81	50-150
13C9_PFNA		85	50-150
d5-EtFOSAA		87	50-150
d3-MeFOSAA		88	50-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZG03024-002**

Description: **Verlinden-MH-5_070224** Matrix: **Aqueous**

Date Sampled: **07/02/2024 0940** Project Name: **RACER**

Date Received: **07/03/2024** Project Number: **30214036.0370B**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	07/25/2024 1955	ARC2	07/23/2024 1216	14853
2	SOP SPE	PFAS by ID SOP QSM B-15	1	08/07/2024 1600	KMM2	07/31/2024 0915	15334

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.9	2.0	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.9	2.0	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.9	2.0	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	**27619-97-2**	**PFAS by ID SOP**	**2.9**	**JQ**	**7.9**	**2.0**	**ng/L**	**1**
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.9	2.0	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.9	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.9	2.0	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.9	2.0	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.9	2.0	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.9	0.99	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.9	0.99	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.9	0.99	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.9	0.99	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.9	0.99	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.9	0.99	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**1.9**	**JM-03**	**3.9**	**0.99**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**14**	**Q**	**3.9**	**1.4**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	**335-76-2**	**PFAS by ID SOP**	**1.3**	**JM-06**	**3.9**	**0.99**	**ng/L**	**1**
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.9	0.99	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**15**	**M-03**	**3.9**	**0.99**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**20**	**M-03**	**3.9**	**0.99**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**3.5**	**J**	**3.9**	**0.99**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**29**		**3.9**	**0.99**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**27**		**3.9**	**0.99**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.9	0.99	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.9	0.99	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.9	0.99	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**12**	**M-06**	**3.9**	**0.99**	**ng/L**	**1**

Surrogate	Run 1 Q	Run 1 % Recovery	Run 1 Acceptance Limits	Run 2 Q	Run 2 % Recovery	Run 2 Acceptance Limits
13C2_4:2FTS	N	189	50-150	HN	301	50-150
13C2_6:2FTS	N	156	50-150	HN	195	50-150
13C2_8:2FTS		90	50-150	H	107	50-150
13C2_PFDoA		73	50-150	H	81	50-150
13C2_PFTeDA		87	50-150	H	98	50-150
13C3_PFBS		84	50-150	H	92	50-150
13C3_PFHxS		77	50-150	H	101	50-150
13C3-HFPO-DA		57	50-150	H	100	50-150
13C4_PFBA	N	49	50-150	H	64	50-150
13C4_PFHpA		80	50-150	H	93	50-150
13C5_PFHxA		85	50-150	H	99	50-150
13C5_PFPeA		69	50-150	H	89	50-150
13C6_PFDA		70	50-150	H	107	50-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZG03024-002**

Description: **Verlinden-MH-5_070224** Matrix: **Aqueous**

Date Sampled: **07/02/2024 0940** Project Name: **RACER**

Date Received: **07/03/2024** Project Number: **30214036.0370B**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		78	50-150	H	99	50-150
13C8_PFOA		85	50-150	H	99	50-150
13C8_PFOS		77	50-150	H	98	50-150
13C8_PFOSA		88	50-150	H	96	50-150
13C9_PFNA		77	50-150	H	100	50-150
d5-EtFOSAA		73	50-150	H	100	50-150
d3-MeFOSAA		78	50-150	H	101	50-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZG03024-002**

Description: **Verlinden-MH-5_070224** Matrix: **Aqueous**

Date Sampled: **07/02/2024 0940** Project Name: **RACER**

Date Received: **07/03/2024** Project Number: **30214036.0370B**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	07/25/2024 1955	ARC2	07/23/2024 1216	14853
2	SOP SPE	PFAS by ID SOP QSM B-15	1	08/07/2024 1600	KMM2	07/31/2024 0915	15334

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND	H	7.6	1.9	ng/L	2
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND	H	7.6	1.9	ng/L	2
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND	HL	7.6	1.9	ng/L	2
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	**27619-97-2**	**PFAS by ID SOP**	**5.7**	**HJQ**	**7.6**	**1.9**	**ng/L**	**2**
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	HQ	7.6	1.9	ng/L	2
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND	H	7.6	1.9	ng/L	2
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND	H	7.6	1.9	ng/L	2
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND	H	7.6	1.9	ng/L	2
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND	H	7.6	1.9	ng/L	2
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**3.2**	**HJM-03**	**3.8**	**0.95**	**ng/L**	**2**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND	H	3.8	0.95	ng/L	2
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND	H	3.8	0.95	ng/L	2
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND	H	3.8	0.95	ng/L	2
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND	H	3.8	0.95	ng/L	2
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND	H	3.8	0.95	ng/L	2
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**2.0**	**HJM-03**	**3.8**	**0.95**	**ng/L**	**2**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**13**	**H**	**3.8**	**1.4**	**ng/L**	**2**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND	H	3.8	0.95	ng/L	2
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND	H	3.8	0.95	ng/L	2
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**19**	**HM-03**	**3.8**	**0.95**	**ng/L**	**2**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**24**	**HM-03**	**3.8**	**0.95**	**ng/L**	**2**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**2.7**	**HJM-03**	**3.8**	**0.95**	**ng/L**	**2**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**30**	**H**	**3.8**	**0.95**	**ng/L**	**2**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**36**	**H**	**3.8**	**0.95**	**ng/L**	**2**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND	H	3.8	0.95	ng/L	2
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND	H	3.8	0.95	ng/L	2
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND	H	3.8	0.95	ng/L	2
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**9.8**	**HM-03**	**3.8**	**0.95**	**ng/L**	**2**

Surrogate	Run 1 Q	Run 1 % Recovery	Run 1 Acceptance Limits	Run 2 Q	Run 2 % Recovery	Run 2 Acceptance Limits
13C2_4:2FTS	N	189	50-150	HN	301	50-150
13C2_6:2FTS	N	156	50-150	HN	195	50-150
13C2_8:2FTS		90	50-150	H	107	50-150
13C2_PFDoA		73	50-150	H	81	50-150
13C2_PFTeDA		87	50-150	H	98	50-150
13C3_PFBS		84	50-150	H	92	50-150
13C3_PFHxS		77	50-150	H	101	50-150
13C3-HFPO-DA		57	50-150	H	100	50-150
13C4_PFBA	N	49	50-150	H	64	50-150
13C4_PFHpA		80	50-150	H	93	50-150
13C5_PFHxA		85	50-150	H	99	50-150
13C5_PFPeA		69	50-150	H	89	50-150
13C6_PFDA		70	50-150	H	107	50-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZG03024-002**

Description: **Verlinden-MH-5_070224** Matrix: **Aqueous**

Date Sampled: **07/02/2024 0940** Project Name: **RACER**

Date Received: **07/03/2024** Project Number: **30214036.0370B**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		78	50-150	H	99	50-150
13C8_PFOA		85	50-150	H	99	50-150
13C8_PFOS		77	50-150	H	98	50-150
13C8_PFOSA		88	50-150	H	96	50-150
13C9_PFNA		77	50-150	H	100	50-150
d5-EtFOSAA		73	50-150	H	100	50-150
d3-MeFOSAA		78	50-150	H	101	50-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZG03024-003**

Description: **Osborn-MH-1_070224** Matrix: **Aqueous**

Date Sampled: **07/02/2024 1005** Project Name: **RACER**

Date Received: **07/03/2024** Project Number: **30214036.0370B**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	07/30/2024 0021	KMM2	07/25/2024 1448	15000

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		8.0	2.0	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		8.0	2.0	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND	Q	8.0	2.0	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	8.0	2.0	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	8.0	2.0	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		8.0	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		8.0	2.0	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		8.0	2.0	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		8.0	2.0	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**2.2**	**JM-03**	**4.0**	**1.0**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		4.0	1.0	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		4.0	1.0	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		4.0	1.0	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		4.0	1.0	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		4.0	1.0	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**2.1**	**JM-03**	**4.0**	**1.0**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**16**	**M-03**	**4.0**	**1.4**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	**335-76-2**	**PFAS by ID SOP**	**5.1**		**4.0**	**1.0**	**ng/L**	**1**
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		4.0	1.0	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**14**	**M-03**	**4.0**	**1.0**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**14**	**M-03**	**4.0**	**1.0**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**5.5**		**4.0**	**1.0**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**30**	**M-03**	**4.0**	**1.0**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**18**	**M-03**	**4.0**	**1.0**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		4.0	1.0	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		4.0	1.0	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		4.0	1.0	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**16**	**M-06**	**4.0**	**1.0**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	235	50-150
13C2_6:2FTS	N	244	50-150
13C2_8:2FTS	N	163	50-150
13C2_PFDoA		81	50-150
13C2_PFTeDA		93	50-150
13C3_PFBS		89	50-150
13C3_PFHxS		96	50-150
13C3-HFPO-DA		92	50-150
13C4_PFBA		58	50-150
13C4_PFHpA		85	50-150
13C5_PFHxA		99	50-150
13C5_PFPeA		86	50-150
13C6_PFDA		92	50-150
13C7_PFUdA		90	50-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZG03024-003**

Description: **Osborn-MH-1_070224** Matrix: **Aqueous**

Date Sampled: **07/02/2024 1005** Project Name: **RACER**

Date Received: **07/03/2024** Project Number: **30214036.0370B**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		90	50-150
13C8_PFOS		99	50-150
13C8_PFOSA		98	50-150
13C9_PFNA		96	50-150
d5-EtFOSAA		112	50-150
d3-MeFOSAA		123	50-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZG03024-004**

Description: **Dup-01_070224** Matrix: **Aqueous**

Date Sampled: **07/02/2024** Project Name: **RACER**

Date Received: **07/03/2024** Project Number: **30214036.0370B**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	07/30/2024 0032	KMM2	07/25/2024 1448	15000

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.8	2.0	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.8	2.0	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND	Q	7.8	2.0	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.8	2.0	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.8	2.0	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.8	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.8	2.0	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.8	2.0	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.8	2.0	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**1.7**	**JM-03**	**3.9**	**0.98**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.9	0.98	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.9	0.98	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.9	0.98	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.9	0.98	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.9	0.98	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**2.8**	**JM-03**	**3.9**	**0.98**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**15**	**M-01**	**3.9**	**1.4**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	**335-76-2**	**PFAS by ID SOP**	**4.4**	**M-03**	**3.9**	**0.98**	**ng/L**	**1**
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.9	0.98	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**14**	**M-03**	**3.9**	**0.98**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**17**	**M-01**	**3.9**	**0.98**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**5.7**		**3.9**	**0.98**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**29**	**M-03**	**3.9**	**0.98**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**18**		**3.9**	**0.98**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.9	0.98	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.9	0.98	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.9	0.98	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**20**	**M-06**	**3.9**	**0.98**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	253	50-150
13C2_6:2FTS	N	257	50-150
13C2_8:2FTS	N	174	50-150
13C2_PFDoA		92	50-150
13C2_PFTeDA		91	50-150
13C3_PFBS		94	50-150
13C3_PFHxS		90	50-150
13C3-HFPO-DA		99	50-150
13C4_PFBA		58	50-150
13C4_PFHpA		89	50-150
13C5_PFHxA		94	50-150
13C5_PFPeA		87	50-150
13C6_PFDA		94	50-150
13C7_PFUdA		94	50-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZG03024-004**

Description: **Dup-01_070224** Matrix: **Aqueous**

Date Sampled: **07/02/2024** Project Name: **RACER**

Date Received: **07/03/2024** Project Number: **30214036.0370B**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		95	50-150
13C8_PFOS		94	50-150
13C8_PFOSA		100	50-150
13C9_PFNA		96	50-150
d5-EtFOSAA		114	50-150
d3-MeFOSAA		124	50-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZG03024-005**

Description: **P3-MH-284_070224** Matrix: **Aqueous**

Date Sampled: **07/02/2024 1115** Project Name: **RACER**

Date Received: **07/03/2024** Project Number: **30214036.0370B**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	07/30/2024 0042	KMM2	07/25/2024 1448	15000

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.9	2.0	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.9	2.0	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.9	2.0	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.9	2.0	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.9	2.0	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.9	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.9	2.0	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.9	2.0	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.9	2.0	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		4.0	0.99	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		4.0	0.99	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		4.0	0.99	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		4.0	0.99	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		4.0	0.99	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		4.0	0.99	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**1.5**	**JM-03**	**4.0**	**0.99**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**2.8**	**JM-03**	**4.0**	**1.4**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		4.0	0.99	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		4.0	0.99	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		4.0	0.99	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		4.0	0.99	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		4.0	0.99	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**1.7**	**JM-03**	**4.0**	**0.99**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		4.0	0.99	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		4.0	0.99	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		4.0	0.99	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		4.0	0.99	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**8.8**	**M-03**	**4.0**	**0.99**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	227	50-150
13C2_6:2FTS	N	220	50-150
13C2_8:2FTS		137	50-150
13C2_PFDoA		86	50-150
13C2_PFTeDA		94	50-150
13C3_PFBS		92	50-150
13C3_PFHxS		93	50-150
13C3-HFPO-DA		91	50-150
13C4_PFBA		54	50-150
13C4_PFHpA		90	50-150
13C5_PFHxA		96	50-150
13C5_PFPeA		82	50-150
13C6_PFDA		93	50-150
13C7_PFUdA		94	50-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
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P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
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H = Out of holding time
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S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZG03024-005**

Description: **P3-MH-284_070224** Matrix: **Aqueous**

Date Sampled: **07/02/2024 1115** Project Name: **RACER**

Date Received: **07/03/2024** Project Number: **30214036.0370B**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		99	50-150
13C8_PFOS		98	50-150
13C8_PFOSA		95	50-150
13C9_PFNA		89	50-150
d5-EtFOSAA		103	50-150
d3-MeFOSAA		114	50-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZG03024-006**

Description: **P2-MH-2_070224** Matrix: **Aqueous**

Date Sampled: **07/02/2024 1210** Project Name: **RACER**

Date Received: **07/03/2024** Project Number: **30214036.0370B**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	07/30/2024 0053	KMM2	07/25/2024 1448	15000

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		8.2	2.0	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		8.2	2.0	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND	Q	8.2	2.0	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	8.2	2.0	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	8.2	2.0	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		8.2	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		8.2	2.0	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		8.2	2.0	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		8.2	2.0	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**4.2**	**M-03**	**4.1**	**1.0**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**10**		**4.1**	**1.5**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	**335-76-2**	**PFAS by ID SOP**	**2.0**	**J**	**4.1**	**1.0**	**ng/L**	**1**
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**7.8**	**M-03**	**4.1**	**1.0**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**8.8**	**M-01**	**4.1**	**1.0**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**2.5**	**J**	**4.1**	**1.0**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**16**		**4.1**	**1.0**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**7.6**		**4.1**	**1.0**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**19**	**M-06**	**4.1**	**1.0**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	255	50-150
13C2_6:2FTS	N	248	50-150
13C2_8:2FTS	N	165	50-150
13C2_PFDoA		88	50-150
13C2_PFTeDA		91	50-150
13C3_PFBS		92	50-150
13C3_PFHxS		93	50-150
13C3-HFPO-DA		98	50-150
13C4_PFBA		54	50-150
13C4_PFHpA		87	50-150
13C5_PFHxA		89	50-150
13C5_PFPeA		80	50-150
13C6_PFDA		87	50-150
13C7_PFUdA		96	50-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZG03024-006**

Description: **P2-MH-2_070224** Matrix: **Aqueous**

Date Sampled: **07/02/2024 1210** Project Name: **RACER**

Date Received: **07/03/2024** Project Number: **30214036.0370B**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		100	50-150
13C8_PFOS		89	50-150
13C8_PFOSA		96	50-150
13C9_PFNA		86	50-150
d5-EtFOSAA		107	50-150
d3-MeFOSAA		121	50-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZG03024-007**

Description: **P2-MH-W_070224** Matrix: **Aqueous**

Date Sampled: **07/02/2024 1255** Project Name: **RACER**

Date Received: **07/03/2024** Project Number: **30214036.0370B**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	07/30/2024 0103	KMM2	07/25/2024 1448	15000

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.8	1.9	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.8	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.8	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.8	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.8	1.9	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.8	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.8	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.8	1.9	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.8	1.9	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.9	0.97	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.9	0.97	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.9	0.97	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.9	0.97	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.9	0.97	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.9	0.97	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**1.7**	**JM-03**	**3.9**	**0.97**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**3.6**	**JM-03**	**3.9**	**1.4**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.9	0.97	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.9	0.97	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.9	0.97	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.9	0.97	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.9	0.97	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**2.2**	**JM-03**	**3.9**	**0.97**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**1.3**	**J**	**3.9**	**0.97**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.9	0.97	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.9	0.97	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.9	0.97	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.9	0.97	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	204	50-150
13C2_6:2FTS		133	50-150
13C2_8:2FTS		102	50-150
13C2_PFDoA		85	50-150
13C2_PFTeDA		94	50-150
13C3_PFBS		92	50-150
13C3_PFHxS		88	50-150
13C3-HFPO-DA		96	50-150
13C4_PFBA		62	50-150
13C4_PFHpA		92	50-150
13C5_PFHxA		87	50-150
13C5_PFPeA		87	50-150
13C6_PFDA		91	50-150
13C7_PFUdA		83	50-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.**		Laboratory ID: **ZG03024-007**
Description: **P2-MH-W_070224**		Matrix: **Aqueous**
Date Sampled: **07/02/2024 1255**	Project Name: **RACER**	
Date Received: **07/03/2024**	Project Number: **30214036.0370B**	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		95	50-150
13C8_PFOS		97	50-150
13C8_PFOSA		98	50-150
13C9_PFNA		90	50-150
d5-EtFOSAA		98	50-150
d3-MeFOSAA		110	50-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
ND = Not detected at or above the DL	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis			S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZG03024-008**

Description: **FB-01_070224** Matrix: **Aqueous**

Date Sampled: **07/02/2024 1307** Project Name: **RACER**

Date Received: **07/03/2024** Project Number: **30214036.0370B**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	07/30/2024 0114	KMM2	07/25/2024 1448	15000

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		8.2	2.0	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		8.2	2.0	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		8.2	2.0	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		8.2	2.0	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		8.2	2.0	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		8.2	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		8.2	2.0	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		8.2	2.0	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		8.2	2.0	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		4.1	1.5	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		4.1	1.0	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		100	50-150
13C2_6:2FTS		121	50-150
13C2_8:2FTS		89	50-150
13C2_PFDoA		91	50-150
13C2_PFTeDA		94	50-150
13C3_PFBS		101	50-150
13C3_PFHxS		96	50-150
13C3-HFPO-DA		114	50-150
13C4_PFBA		102	50-150
13C4_PFHpA		100	50-150
13C5_PFHxA		107	50-150
13C5_PFPeA		98	50-150
13C6_PFDA		90	50-150
13C7_PFUdA		89	50-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZG03024-008**

Description: **FB-01_070224** Matrix: **Aqueous**

Date Sampled: **07/02/2024 1307** Project Name: **RACER**

Date Received: **07/03/2024** Project Number: **30214036.0370B**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		107	50-150
13C8_PFOS		93	50-150
13C8_PFOSA		87	50-150
13C9_PFNA		96	50-150
d5-EtFOSAA		93	50-150
d3-MeFOSAA		111	50-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZG03024-009**

Description: **EB-01_070224** Matrix: **Aqueous**

Date Sampled: **07/02/2024 1312** Project Name: **RACER**

Date Received: **07/03/2024** Project Number: **30214036.0370B**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	07/30/2024 0125	KMM2	07/25/2024 1448	15000

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		8.5	2.1	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		8.5	2.1	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		8.5	2.1	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		8.5	2.1	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		8.5	2.1	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		8.5	2.1	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		8.5	2.1	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		8.5	2.1	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		8.5	2.1	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		4.2	1.5	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		4.2	1.1	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		4.2	1.1	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		96	50-150
13C2_6:2FTS		117	50-150
13C2_8:2FTS		91	50-150
13C2_PFDoA		83	50-150
13C2_PFTeDA		91	50-150
13C3_PFBS		105	50-150
13C3_PFHxS		97	50-150
13C3-HFPO-DA		104	50-150
13C4_PFBA		69	50-150
13C4_PFHpA		108	50-150
13C5_PFHxA		100	50-150
13C5_PFPeA		96	50-150
13C6_PFDA		97	50-150
13C7_PFUdA		90	50-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
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PFAS by LC/MS/MS

Client: **Arcadis U.S., Inc.** Laboratory ID: **ZG03024-009**

Description: **EB-01_070224** Matrix: **Aqueous**

Date Sampled: **07/02/2024 1312** Project Name: **RACER**

Date Received: **07/03/2024** Project Number: **30214036.0370B**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		103	50-150
13C8_PFOS		100	50-150
13C8_PFOSA		95	50-150
13C9_PFNA		98	50-150
d5-EtFOSAA		102	50-150
d3-MeFOSAA		99	50-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
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QC Summary

PFAS by LC/MS/MS - MB

Sample ID: ZQ14853-001
Batch: 14853
Analytical Method: PFAS by ID SOP QSM B-15
Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 07/23/2024 1216

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
9Cl-PF3ONS	ND		1	8.0	2.0	ng/L	07/25/2024 1759
11Cl-PF3OUdS	ND		1	8.0	2.0	ng/L	07/25/2024 1759
8:2 FTS	ND		1	8.0	2.0	ng/L	07/25/2024 1759
6:2 FTS	ND		1	8.0	2.0	ng/L	07/25/2024 1759
4:2 FTS	ND		1	8.0	2.0	ng/L	07/25/2024 1759
GenX	ND		1	8.0	2.0	ng/L	07/25/2024 1759
ADONA	ND		1	8.0	2.0	ng/L	07/25/2024 1759
EtFOSAA	ND		1	8.0	2.0	ng/L	07/25/2024 1759
MeFOSAA	ND		1	8.0	2.0	ng/L	07/25/2024 1759
PFBS	ND		1	4.0	1.0	ng/L	07/25/2024 1759
PFDS	ND		1	4.0	1.0	ng/L	07/25/2024 1759
PFHpS	ND		1	4.0	1.0	ng/L	07/25/2024 1759
PFNS	ND		1	4.0	1.0	ng/L	07/25/2024 1759
PFOSA	ND		1	4.0	1.0	ng/L	07/25/2024 1759
PFPeS	ND		1	4.0	1.0	ng/L	07/25/2024 1759
PFHxS	ND		1	4.0	1.0	ng/L	07/25/2024 1759
PFBA	ND		1	4.0	1.5	ng/L	07/25/2024 1759
PFDA	ND		1	4.0	1.0	ng/L	07/25/2024 1759
PFDoA	ND		1	4.0	1.0	ng/L	07/25/2024 1759
PFHpA	ND		1	4.0	1.0	ng/L	07/25/2024 1759
PFHxA	ND		1	4.0	1.0	ng/L	07/25/2024 1759
PFNA	ND		1	4.0	1.0	ng/L	07/25/2024 1759
PFOA	ND		1	4.0	1.0	ng/L	07/25/2024 1759
PFPeA	ND		1	4.0	1.0	ng/L	07/25/2024 1759
PFTeDA	ND		1	4.0	1.0	ng/L	07/25/2024 1759
PFTrDA	ND		1	4.0	1.0	ng/L	07/25/2024 1759
PFUdA	ND		1	4.0	1.0	ng/L	07/25/2024 1759
PFOS	ND		1	4.0	1.0	ng/L	07/25/2024 1759

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		84	50-150
13C2_6:2FTS		89	50-150
13C2_8:2FTS		74	50-150
13C2_PFDoA		80	50-150
13C2_PFTeDA		86	50-150
13C3_PFBS		96	50-150
13C3_PFHxS		77	50-150
13C3-HFPO-DA		73	50-150
13C4_PFBA		85	50-150
13C4_PFHpA		89	50-150
13C5_PFHxA		84	50-150
13C5_PFPeA		86	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: ZQ14853-001
Batch: 14853
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 07/23/2024 1216

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		79	50-150
13C7_PFUdA		93	50-150
13C8_PFOA		91	50-150
13C8_PFOS		86	50-150
13C8_PFOSA		90	50-150
13C9_PFNA		88	50-150
d5-EtFOSAA		78	50-150
d3-MeFOSAA		82	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ14853-002
Batch: 14853
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 07/23/2024 1216

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	15		1	99	50-150	07/25/2024 1809
11Cl-PF3OUdS	15	15		1	102	50-150	07/25/2024 1809
8:2 FTS	15	16		1	103	67-138	07/25/2024 1809
6:2 FTS	15	17	M-03	1	114	64-140	07/25/2024 1809
4:2 FTS	15	15		1	100	63-143	07/25/2024 1809
GenX	32	38		1	117	50-150	07/25/2024 1809
ADONA	15	15		1	99	50-150	07/25/2024 1809
EtFOSAA	16	18	M-03	1	115	61-135	07/25/2024 1809
MeFOSAA	16	16	M-03	1	98	65-136	07/25/2024 1809
PFBS	14	12		1	87	72-130	07/25/2024 1809
PFDS	15	14		1	92	53-142	07/25/2024 1809
PFHpS	15	15		1	96	69-134	07/25/2024 1809
PFNS	15	16		1	103	69-127	07/25/2024 1809
PFOSA	16	15		1	91	67-137	07/25/2024 1809
PFPeS	15	15		1	100	71-127	07/25/2024 1809
PFHxS	15	14		1	93	68-131	07/25/2024 1809
PFBA	16	15		1	95	73-129	07/25/2024 1809
PFDA	16	15		1	96	71-129	07/25/2024 1809
PFDoA	16	17		1	107	72-134	07/25/2024 1809
PFHpA	16	17		1	104	72-130	07/25/2024 1809
PFHxA	16	17		1	106	72-129	07/25/2024 1809
PFNA	16	13		1	84	69-130	07/25/2024 1809
PFOA	16	16		1	98	71-133	07/25/2024 1809
PFPeA	16	17		1	105	72-129	07/25/2024 1809
PFTeDA	16	16		1	98	71-132	07/25/2024 1809
PFTrDA	16	16		1	98	65-144	07/25/2024 1809
PFUdA	16	17		1	106	69-133	07/25/2024 1809
PFOS	15	14	M-03	1	97	65-140	07/25/2024 1809

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		104	50-150
13C2_6:2FTS		88	50-150
13C2_8:2FTS		87	50-150
13C2_PFDoA		79	50-150
13C2_PFTeDA		97	50-150
13C3_PFBS		94	50-150
13C3_PFHxS		86	50-150
13C3-HFPO-DA		78	50-150
13C4_PFBA		91	50-150
13C4_PFHpA		91	50-150
13C5_PFHxA		83	50-150
13C5_PFPeA		91	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ14853-002
Batch: 14853
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 07/23/2024 1216

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		75	50-150
13C7_PFUdA		87	50-150
13C8_PFOA		93	50-150
13C8_PFOS		85	50-150
13C8_PFOSA		90	50-150
13C9_PFNA		98	50-150
d5-EtFOSAA		77	50-150
d3-MeFOSAA		81	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID: ZG03024-001MS
Batch: 14853
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 07/23/2024 1216

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	ND	15	15		1	103	50-150	07/25/2024 1934
11Cl-PF3OUdS	ND	15	13		1	88	50-150	07/25/2024 1934
8:2 FTS	ND	15	16		1	105	67-138	07/25/2024 1934
6:2 FTS	ND	15	15		1	102	64-140	07/25/2024 1934
4:2 FTS	ND	15	15		1	101	63-143	07/25/2024 1934
GenX	ND	32	38		1	119	50-150	07/25/2024 1934
ADONA	ND	15	15		1	98	50-150	07/25/2024 1934
EtFOSAA	ND	16	16	M-03	1	101	61-135	07/25/2024 1934
MeFOSAA	ND	16	15	M-03	1	93	65-136	07/25/2024 1934
PFBS	ND	14	16		1	114	72-130	07/25/2024 1934
PFDS	ND	15	15		1	95	53-142	07/25/2024 1934
PFHpS	ND	15	17		1	114	69-134	07/25/2024 1934
PFNS	ND	15	16		1	104	69-127	07/25/2024 1934
PFOSA	ND	16	14		1	88	67-137	07/25/2024 1934
PFPeS	ND	15	15	M-03	1	103	71-127	07/25/2024 1934
PFHxS	7.0	14	23	M-03	1	111	68-131	07/25/2024 1934
PFBA	8.6	16	25		1	105	73-129	07/25/2024 1934
PFDA	ND	16	16		1	99	71-129	07/25/2024 1934
PFDoA	ND	16	16		1	102	72-134	07/25/2024 1934
PFHpA	4.6	16	19	M-03	1	92	72-130	07/25/2024 1934
PFHxA	5.1	16	20	M-03	1	96	72-129	07/25/2024 1934
PFNA	ND	16	16		1	101	69-130	07/25/2024 1934
PFOA	6.0	16	22	M-03	1	99	71-133	07/25/2024 1934
PFPeA	6.8	16	22		1	94	72-129	07/25/2024 1934
PFTeDA	ND	16	14		1	90	71-132	07/25/2024 1934
PFTrDA	ND	16	12		1	74	65-144	07/25/2024 1934
PFUdA	ND	16	17		1	105	69-133	07/25/2024 1934
PFOS	4.8	15	19		1	98	65-140	07/25/2024 1934

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS	N	232	50-150
13C2_6:2FTS	N	158	50-150
13C2_8:2FTS		108	50-150
13C2_PFDoA		64	50-150
13C2_PFTeDA		57	50-150
13C3_PFBS		70	50-150
13C3_PFHxS		69	50-150
13C3-HFPO-DA		59	50-150
13C4_PFBA	N	40	50-150
13C4_PFHpA		70	50-150
13C5_PFHxA		79	50-150
13C5_PFPeA		60	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID: ZG03024-001MS
Batch: 14853
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 07/23/2024 1216

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		75	50-150
13C7_PFUdA		88	50-150
13C8_PFOA		88	50-150
13C8_PFOS		77	50-150
13C8_PFOSA		83	50-150
13C9_PFNA		77	50-150
d5-EtFOSAA		87	50-150
d3-MeFOSAA		84	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MSD

Sample ID: ZG03024-001MD
Batch: 14853
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 07/23/2024 1216

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
9Cl-PF3ONS	ND	15	15		1	99	0.75	50-150	30	07/25/2024 1945
11Cl-PF3OUdS	ND	15	13		1	84	1.8	50-150	30	07/25/2024 1945
8:2 FTS	ND	16	18	M-03	1	117	14	67-138	30	07/25/2024 1945
6:2 FTS	ND	16	19		1	120	19	64-140	30	07/25/2024 1945
4:2 FTS	ND	15	15		1	99	0.73	63-143	30	07/25/2024 1945
GenX	ND	33	44		1	134	15	50-150	30	07/25/2024 1945
ADONA	ND	15	16		1	103	7.6	50-150	30	07/25/2024 1945
EtFOSAA	ND	16	17	M-03	1	102	3.3	61-135	30	07/25/2024 1945
MeFOSAA	ND	16	18		1	108	18	65-136	30	07/25/2024 1945
PFBS	ND	14	15		1	105	5.1	72-130	30	07/25/2024 1945
PFDS	ND	16	14		1	88	4.7	53-142	30	07/25/2024 1945
PFHpS	ND	16	16		1	102	8.5	69-134	30	07/25/2024 1945
PFNS	ND	16	13		1	80	23	69-127	30	07/25/2024 1945
PFOSA	ND	16	15	M-03	1	89	3.7	67-137	30	07/25/2024 1945
PFPeS	ND	15	15		1	99	1.5	71-127	30	07/25/2024 1945
PFHxS	7.0	15	22	M-03	1	97	6.8	68-131	30	07/25/2024 1945
PFBA	8.6	16	26		1	104	1.3	73-129	30	07/25/2024 1945
PFDA	ND	16	16		1	100	3.9	71-129	30	07/25/2024 1945
PFDoA	ND	16	17		1	104	4.6	72-134	30	07/25/2024 1945
PFHpA	4.6	16	19	M-03	1	88	1.7	72-130	30	07/25/2024 1945
PFHxA	5.1	16	22	M-03	1	105	8.6	72-129	30	07/25/2024 1945
PFNA	ND	16	15		1	90	8.5	69-130	30	07/25/2024 1945
PFOA	6.0	16	22		1	95	1.1	71-133	30	07/25/2024 1945
PFPeA	6.8	16	22	M-03	1	91	0.39	72-129	30	07/25/2024 1945
PFTeDA	ND	16	15		1	94	7.5	71-132	30	07/25/2024 1945
PFTrDA	ND	16	15		1	94	28	65-144	30	07/25/2024 1945
PFUdA	ND	16	17		1	104	2.7	69-133	30	07/25/2024 1945
PFOS	4.8	15	19	M-06	1	96	0.52	65-140	30	07/25/2024 1945

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS	N	215	50-150
13C2_6:2FTS	N	151	50-150
13C2_8:2FTS		113	50-150
13C2_PFDoA		65	50-150
13C2_PFTeDA		64	50-150
13C3_PFBS		79	50-150
13C3_PFHxS		66	50-150
13C3-HFPO-DA		53	50-150
13C4_PFBA	N	38	50-150
13C4_PFHpA		72	50-150
13C5_PFHxA		73	50-150
13C5_PFPeA		64	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MSD

Sample ID: ZG03024-001MD
Batch: 14853
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 07/23/2024 1216

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		73	50-150
13C7_PFUdA		84	50-150
13C8_PFOA		86	50-150
13C8_PFOS		82	50-150
13C8_PFOSA		85	50-150
13C9_PFNA		83	50-150
d5-EtFOSAA		81	50-150
d3-MeFOSAA		85	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: ZQ15000-001
Batch: 15000
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 07/25/2024 1448

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
9Cl-PF3ONS	ND		1	8.0	2.0	ng/L	07/29/2024 2349
11Cl-PF3OUdS	ND		1	8.0	2.0	ng/L	07/29/2024 2349
8:2 FTS	ND		1	8.0	2.0	ng/L	07/29/2024 2349
6:2 FTS	ND		1	8.0	2.0	ng/L	07/29/2024 2349
4:2 FTS	ND		1	8.0	2.0	ng/L	07/29/2024 2349
GenX	ND		1	8.0	2.0	ng/L	07/29/2024 2349
ADONA	ND		1	8.0	2.0	ng/L	07/29/2024 2349
EtFOSAA	ND		1	8.0	2.0	ng/L	07/29/2024 2349
MeFOSAA	ND		1	8.0	2.0	ng/L	07/29/2024 2349
PFBS	ND		1	4.0	1.0	ng/L	07/29/2024 2349
PFDS	ND		1	4.0	1.0	ng/L	07/29/2024 2349
PFHpS	ND		1	4.0	1.0	ng/L	07/29/2024 2349
PFNS	ND		1	4.0	1.0	ng/L	07/29/2024 2349
PFOSA	ND		1	4.0	1.0	ng/L	07/29/2024 2349
PFPeS	ND		1	4.0	1.0	ng/L	07/29/2024 2349
PFHxS	ND		1	4.0	1.0	ng/L	07/29/2024 2349
PFBA	ND		1	4.0	1.5	ng/L	07/29/2024 2349
PFDA	ND		1	4.0	1.0	ng/L	07/29/2024 2349
PFDoA	ND		1	4.0	1.0	ng/L	07/29/2024 2349
PFHpA	ND		1	4.0	1.0	ng/L	07/29/2024 2349
PFHxA	ND		1	4.0	1.0	ng/L	07/29/2024 2349
PFNA	ND		1	4.0	1.0	ng/L	07/29/2024 2349
PFOA	ND		1	4.0	1.0	ng/L	07/29/2024 2349
PFPeA	ND		1	4.0	1.0	ng/L	07/29/2024 2349
PFTeDA	ND		1	4.0	1.0	ng/L	07/29/2024 2349
PFTrDA	ND		1	4.0	1.0	ng/L	07/29/2024 2349
PFUdA	ND		1	4.0	1.0	ng/L	07/29/2024 2349
PFOS	ND		1	4.0	1.0	ng/L	07/29/2024 2349

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		117	50-150
13C2_6:2FTS		124	50-150
13C2_8:2FTS		104	50-150
13C2_PFDoA		93	50-150
13C2_PFTeDA		88	50-150
13C3_PFBS		107	50-150
13C3_PFHxS		95	50-150
13C3-HFPO-DA		111	50-150
13C4_PFBA		101	50-150
13C4_PFHpA		97	50-150
13C5_PFHxA		110	50-150
13C5_PFPeA		98	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: ZQ15000-001
Batch: 15000
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 07/25/2024 1448

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		97	50-150
13C7_PFUdA		94	50-150
13C8_PFOA		102	50-150
13C8_PFOS		104	50-150
13C8_PFOSA		100	50-150
13C9_PFNA		102	50-150
d5-EtFOSAA		91	50-150
d3-MeFOSAA		110	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ15000-002
Batch: 15000
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 07/25/2024 1448

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	17		1	112	50-150	07/30/2024 0000
11Cl-PF3OUdS	15	16		1	108	50-150	07/30/2024 0000
8:2 FTS	15	17		1	113	67-138	07/30/2024 0000
6:2 FTS	15	14		1	92	64-140	07/30/2024 0000
4:2 FTS	15	16		1	108	63-143	07/30/2024 0000
GenX	32	27		1	84	50-150	07/30/2024 0000
ADONA	15	15		1	102	50-150	07/30/2024 0000
EtFOSAA	16	17		1	105	61-135	07/30/2024 0000
MeFOSAA	16	14	M-03	1	90	65-136	07/30/2024 0000
PFBS	14	15		1	108	72-130	07/30/2024 0000
PFDS	15	16		1	105	53-142	07/30/2024 0000
PFHpS	15	15		1	100	69-134	07/30/2024 0000
PFNS	15	16		1	106	69-127	07/30/2024 0000
PFOSA	16	15	M-03	1	94	67-137	07/30/2024 0000
PFPeS	15	15		1	101	71-127	07/30/2024 0000
PFHxS	15	16		1	107	68-131	07/30/2024 0000
PFBA	16	16		1	101	73-129	07/30/2024 0000
PFDA	16	16		1	99	71-129	07/30/2024 0000
PFDoA	16	16		1	101	72-134	07/30/2024 0000
PFHpA	16	16		1	101	72-130	07/30/2024 0000
PFHxA	16	16		1	98	72-129	07/30/2024 0000
PFNA	16	18		1	109	69-130	07/30/2024 0000
PFOA	16	16		1	100	71-133	07/30/2024 0000
PFPeA	16	16		1	99	72-129	07/30/2024 0000
PFTeDA	16	19		1	118	71-132	07/30/2024 0000
PFTrDA	16	15		1	93	65-144	07/30/2024 0000
PFUdA	16	17		1	107	69-133	07/30/2024 0000
PFOS	15	16	M-03	1	108	65-140	07/30/2024 0000

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		109	50-150
13C2_6:2FTS		122	50-150
13C2_8:2FTS		93	50-150
13C2_PFDoA		85	50-150
13C2_PFTeDA		85	50-150
13C3_PFBS		101	50-150
13C3_PFHxS		95	50-150
13C3-HFPO-DA		113	50-150
13C4_PFBA		98	50-150
13C4_PFHpA		92	50-150
13C5_PFHxA		99	50-150
13C5_PFPeA		103	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ15000-002
Batch: 15000
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 07/25/2024 1448

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		91	50-150
13C7_PFUdA		94	50-150
13C8_PFOA		101	50-150
13C8_PFOS		95	50-150
13C8_PFOSA		98	50-150
13C9_PFNA		95	50-150
d5-EtFOSAA		84	50-150
d3-MeFOSAA		107	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: ZQ15334-001
Batch: 15334
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 07/31/2024 0915

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
9Cl-PF3ONS	ND		1	8.0	2.0	ng/L	08/07/2024 1539
11Cl-PF3OUdS	ND		1	8.0	2.0	ng/L	08/07/2024 1539
8:2 FTS	ND		1	8.0	2.0	ng/L	08/07/2024 1539
6:2 FTS	ND		1	8.0	2.0	ng/L	08/07/2024 1539
4:2 FTS	ND		1	8.0	2.0	ng/L	08/07/2024 1539
GenX	ND		1	8.0	2.0	ng/L	08/07/2024 1539
ADONA	ND		1	8.0	2.0	ng/L	08/07/2024 1539
EtFOSAA	ND		1	8.0	2.0	ng/L	08/07/2024 1539
MeFOSAA	ND		1	8.0	2.0	ng/L	08/07/2024 1539
PFBS	ND		1	4.0	1.0	ng/L	08/07/2024 1539
PFDS	ND		1	4.0	1.0	ng/L	08/07/2024 1539
PFHpS	ND		1	4.0	1.0	ng/L	08/07/2024 1539
PFNS	ND		1	4.0	1.0	ng/L	08/07/2024 1539
PFOSA	ND		1	4.0	1.0	ng/L	08/07/2024 1539
PFPeS	ND		1	4.0	1.0	ng/L	08/07/2024 1539
PFHxS	ND		1	4.0	1.0	ng/L	08/07/2024 1539
PFBA	ND		1	4.0	1.5	ng/L	08/07/2024 1539
PFDA	ND		1	4.0	1.0	ng/L	08/07/2024 1539
PFDoA	ND		1	4.0	1.0	ng/L	08/07/2024 1539
PFHpA	ND		1	4.0	1.0	ng/L	08/07/2024 1539
PFHxA	ND		1	4.0	1.0	ng/L	08/07/2024 1539
PFNA	ND		1	4.0	1.0	ng/L	08/07/2024 1539
PFOA	ND		1	4.0	1.0	ng/L	08/07/2024 1539
PFPeA	ND		1	4.0	1.0	ng/L	08/07/2024 1539
PFTeDA	ND		1	4.0	1.0	ng/L	08/07/2024 1539
PFTrDA	ND		1	4.0	1.0	ng/L	08/07/2024 1539
PFUdA	ND		1	4.0	1.0	ng/L	08/07/2024 1539
PFOS	ND		1	4.0	1.0	ng/L	08/07/2024 1539

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		118	50-150
13C2_6:2FTS		81	50-150
13C2_8:2FTS		91	50-150
13C2_PFDoA		81	50-150
13C2_PFTeDA		89	50-150
13C3_PFBS		88	50-150
13C3_PFHxS		96	50-150
13C3-HFPO-DA		96	50-150
13C4_PFBA		99	50-150
13C4_PFHpA		96	50-150
13C5_PFHxA		95	50-150
13C5_PFPeA		98	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: ZQ15334-001
Batch: 15334
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 07/31/2024 0915

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		104	50-150
13C7_PFUdA		102	50-150
13C8_PFOA		87	50-150
13C8_PFOS		91	50-150
13C8_PFOSA		85	50-150
13C9_PFNA		93	50-150
d5-EtFOSAA		95	50-150
d3-MeFOSAA		89	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ15334-002
Batch: 15334
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 07/31/2024 0915

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	18		1	120	50-150	08/07/2024 1549
11Cl-PF3OUdS	15	16		1	104	50-150	08/07/2024 1549
8:2 FTS	15	22	N	1	146	67-138	08/07/2024 1549
6:2 FTS	15	21		1	137	64-140	08/07/2024 1549
4:2 FTS	15	17		1	117	63-143	08/07/2024 1549
GenX	32	33		1	104	50-150	08/07/2024 1549
ADONA	15	16		1	105	50-150	08/07/2024 1549
EtFOSAA	16	16		1	100	61-135	08/07/2024 1549
MeFOSAA	16	16		1	102	65-136	08/07/2024 1549
PFBS	14	14		1	100	72-130	08/07/2024 1549
PFDS	15	16		1	107	53-142	08/07/2024 1549
PFHpS	15	16		1	103	69-134	08/07/2024 1549
PFNS	15	18		1	119	69-127	08/07/2024 1549
PFOSA	16	17		1	105	67-137	08/07/2024 1549
PFPeS	15	17		1	113	71-127	08/07/2024 1549
PFHxS	15	14		1	96	68-131	08/07/2024 1549
PFBA	16	17		1	107	73-129	08/07/2024 1549
PFDA	16	16		1	101	71-129	08/07/2024 1549
PFDoA	16	19		1	122	72-134	08/07/2024 1549
PFHpA	16	18		1	115	72-130	08/07/2024 1549
PFHxA	16	18		1	113	72-129	08/07/2024 1549
PFNA	16	16		1	101	69-130	08/07/2024 1549
PFOA	16	18		1	110	71-133	08/07/2024 1549
PFPeA	16	19		1	122	72-129	08/07/2024 1549
PFTeDA	16	18		1	112	71-132	08/07/2024 1549
PFTrDA	16	18		1	112	65-144	08/07/2024 1549
PFUdA	16	17		1	108	69-133	08/07/2024 1549
PFOS	15	18		1	125	65-140	08/07/2024 1549

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		113	50-150
13C2_6:2FTS		89	50-150
13C2_8:2FTS		83	50-150
13C2_PFDoA		83	50-150
13C2_PFTeDA		95	50-150
13C3_PFBS		92	50-150
13C3_PFHxS		108	50-150
13C3-HFPO-DA		106	50-150
13C4_PFBA		97	50-150
13C4_PFHpA		98	50-150
13C5_PFHxA		98	50-150
13C5_PFPeA		105	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: ZQ15334-002
Batch: 15334
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 07/31/2024 0915

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		113	50-150
13C7_PFUdA		104	50-150
13C8_PFOA		94	50-150
13C8_PFOS		88	50-150
13C8_PFOSA		96	50-150
13C9_PFNA		94	50-150
d5-EtFOSAA		99	50-150
d3-MeFOSAA		91	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Manual Integration Summary

Arcadis U.S., Inc.

Lot Number: ZG03024

Project Name: RACER

Project Number: 30214036.0370B

Where applicable, analytes for which manual integration occurred have been flagged with the following:

Qualifier	Technical Justification	Qualifier	Technical Justification	Qualifier	Technical Justification
M-01	Split peak	M-07	Low fit	M-13	Error
M-02	Peak tailing	M-08	Peak not found	M-14	Baseline
M-03	Incorrect auto integration	M-09	Analyte not Identified by the Data System	M-15	Other
M-04	Poor chromatography	M-10	Analyte misidentified by the Data System	M-16	Retention time shift
M-05	Manually assigned peak	M-11	Invalid integration	M-17	Shouldering
M-06	Wrong isomer	M-12	Wrong peak		

A summary of instances where manual integration occurred is included below:

Method	Sample	Run Number	Parameter	Qualifier
PFAS by ID SOP	ZG03024-001	1	Perfluorohexanesulfonic acid (PFHxS)	M-03
PFAS by ID SOP	ZG03024-001	1	Perfluoro-n-heptanoic acid (PFHpA)	M-03
PFAS by ID SOP	ZG03024-001	1	Perfluoro-n-pentanoic acid (PFPeA)	M-01
PFAS by ID SOP	ZG03024-001	1	Perfluorooctanesulfonic acid (PFOS)	M-03
PFAS by ID SOP	ZG03024-002	1	Perfluorohexanesulfonic acid (PFHxS)	M-03
PFAS by ID SOP	ZG03024-002	1	Perfluoro-n-decanoic acid (PFDA)	M-06
PFAS by ID SOP	ZG03024-002	1	Perfluoro-n-heptanoic acid (PFHpA)	M-03
PFAS by ID SOP	ZG03024-002	1	Perfluoro-n-hexanoic acid (PFHxA)	M-03
PFAS by ID SOP	ZG03024-002	1	Perfluorooctanesulfonic acid (PFOS)	M-06
PFAS by ID SOP	ZG03024-002	2	Perfluoro-1-butanesulfonic acid (PFBS)	M-03
PFAS by ID SOP	ZG03024-002	2	Perfluorohexanesulfonic acid (PFHxS)	M-03
PFAS by ID SOP	ZG03024-002	2	Perfluoro-n-heptanoic acid (PFHpA)	M-03
PFAS by ID SOP	ZG03024-002	2	Perfluoro-n-hexanoic acid (PFHxA)	M-03
PFAS by ID SOP	ZG03024-002	2	Perfluoro-n-nonanoic acid (PFNA)	M-03
PFAS by ID SOP	ZG03024-002	2	Perfluorooctanesulfonic acid (PFOS)	M-03
PFAS by ID SOP	ZG03024-003	1	Perfluoro-1-butanesulfonic acid (PFBS)	M-03
PFAS by ID SOP	ZG03024-003	1	Perfluorohexanesulfonic acid (PFHxS)	M-03
PFAS by ID SOP	ZG03024-003	1	Perfluoro-n-butanoic acid (PFBA)	M-03
PFAS by ID SOP	ZG03024-003	1	Perfluoro-n-heptanoic acid (PFHpA)	M-03
PFAS by ID SOP	ZG03024-003	1	Perfluoro-n-hexanoic acid (PFHxA)	M-03
PFAS by ID SOP	ZG03024-003	1	Perfluoro-n-octanoic acid (PFOA)	M-03
PFAS by ID SOP	ZG03024-003	1	Perfluoro-n-pentanoic acid (PFPeA)	M-03
PFAS by ID SOP	ZG03024-003	1	Perfluorooctanesulfonic acid (PFOS)	M-06
PFAS by ID SOP	ZG03024-004	1	Perfluoro-1-butanesulfonic acid (PFBS)	M-03
PFAS by ID SOP	ZG03024-004	1	Perfluorohexanesulfonic acid (PFHxS)	M-03
PFAS by ID SOP	ZG03024-004	1	Perfluoro-n-butanoic acid (PFBA)	M-01
PFAS by ID SOP	ZG03024-004	1	Perfluoro-n-decanoic acid (PFDA)	M-03
PFAS by ID SOP	ZG03024-004	1	Perfluoro-n-heptanoic acid (PFHpA)	M-03
PFAS by ID SOP	ZG03024-004	1	Perfluoro-n-hexanoic acid (PFHxA)	M-01
PFAS by ID SOP	ZG03024-004	1	Perfluoro-n-octanoic acid (PFOA)	M-03
PFAS by ID SOP	ZG03024-004	1	Perfluorooctanesulfonic acid (PFOS)	M-06
PFAS by ID SOP	ZG03024-005	1	Perfluorohexanesulfonic acid (PFHxS)	M-03
PFAS by ID SOP	ZG03024-005	1	Perfluoro-n-butanoic acid (PFBA)	M-03
PFAS by ID SOP	ZG03024-005	1	Perfluoro-n-octanoic acid (PFOA)	M-03
PFAS by ID SOP	ZG03024-005	1	Perfluorooctanesulfonic acid (PFOS)	M-03
PFAS by ID SOP	ZG03024-006	1	Perfluorohexanesulfonic acid (PFHxS)	M-03
PFAS by ID SOP	ZG03024-006	1	Perfluoro-n-heptanoic acid (PFHpA)	M-03

Manual Integration Summary

Arcadis U.S., Inc.

Lot Number: ZG03024

Project Name: RACER

Project Number: 30214036.0370B

Where applicable, analytes for which manual integration occurred have been flagged with the following:

Qualifier	Technical Justification	Qualifier	Technical Justification	Qualifier	Technical Justification
M-01	Split peak	M-07	Low fit	M-13	Error
M-02	Peak tailing	M-08	Peak not found	M-14	Baseline
M-03	Incorrect auto integration	M-09	Analyte not Identified by the Data System	M-15	Other
M-04	Poor chromatography	M-10	Analyte misidentified by the Data System	M-16	Retention time shift
M-05	Manually assigned peak	M-11	Invalid integration	M-17	Shouldering
M-06	Wrong isomer	M-12	Wrong peak		

A summary of instances where manual integration occurred is included below:

Method	Sample	Run Number	Parameter	Qualifier
PFAS by ID SOP	ZG03024-006	1	Perfluoro-n-hexanoic acid (PFHxA)	M-01
PFAS by ID SOP	ZG03024-006	1	Perfluorooctanesulfonic acid (PFOS)	M-06
PFAS by ID SOP	ZG03024-007	1	Perfluorohexanesulfonic acid (PFHxS)	M-03
PFAS by ID SOP	ZG03024-007	1	Perfluoro-n-butanoic acid (PFBA)	M-03
PFAS by ID SOP	ZG03024-007	1	Perfluoro-n-octanoic acid (PFOA)	M-03
PFAS by ID SOP	ZG03024-001MD	1	1H, 1H, 2H, 2H-perfluorodecane	M-03
PFAS by ID SOP	ZQ14853-002	1	1H, 1H, 2H, 2H-perfluorooctane sulfonic	M-03
PFAS by ID SOP	ZQ14853-002	1	N-ethylperfluoro-1-	M-03
PFAS by ID SOP	ZG03024-001MS	1	N-ethylperfluoro-1-	M-03
PFAS by ID SOP	ZG03024-001MD	1	N-ethylperfluoro-1-	M-03
PFAS by ID SOP	ZQ14853-002	1	N-methylperfluoro-1-	M-03
PFAS by ID SOP	ZG03024-001MS	1	N-methylperfluoro-1-	M-03
PFAS by ID SOP	ZG03024-001MD	1	Perfluoro-1-octanesulfonamide (PFOSA)	M-03
PFAS by ID SOP	ZG03024-001MS	1	Perfluoro-1-pentanesulfonic acid	M-03
PFAS by ID SOP	ZG03024-001MS	1	Perfluorohexanesulfonic acid (PFHxS)	M-03
PFAS by ID SOP	ZG03024-001MD	1	Perfluorohexanesulfonic acid (PFHxS)	M-03
PFAS by ID SOP	ZG03024-001MS	1	Perfluoro-n-heptanoic acid (PFHpA)	M-03
PFAS by ID SOP	ZG03024-001MD	1	Perfluoro-n-heptanoic acid (PFHpA)	M-03
PFAS by ID SOP	ZG03024-001MS	1	Perfluoro-n-hexanoic acid (PFHxA)	M-03
PFAS by ID SOP	ZG03024-001MD	1	Perfluoro-n-hexanoic acid (PFHxA)	M-03
PFAS by ID SOP	ZG03024-001MS	1	Perfluoro-n-octanoic acid (PFOA)	M-03
PFAS by ID SOP	ZG03024-001MD	1	Perfluoro-n-pentanoic acid (PFPeA)	M-03
PFAS by ID SOP	ZQ14853-002	1	Perfluorooctanesulfonic acid (PFOS)	M-03
PFAS by ID SOP	ZG03024-001MD	1	Perfluorooctanesulfonic acid (PFOS)	M-06
PFAS by ID SOP	ZQ15000-002	1	N-methylperfluoro-1-	M-03
PFAS by ID SOP	ZQ15000-002	1	Perfluoro-1-octanesulfonamide (PFOSA)	M-03
PFAS by ID SOP	ZQ15000-002	1	Perfluorooctanesulfonic acid (PFOS)	M-03

If you have any questions regarding this report, please contact the Pace Project Manager listed on the cover page.

Chain of Custody
and
Miscellaneous Documents

PACE ANALYTICAL SERVICES, LLC
106 Vantage Point Drive • West Columbia, SC 29172
Telephone No. 803-791-9700 Fax No. 803-791-9111
www.pacelabs.com

Number 152561

Client: Arcadis	Report to Contact: M. Sump/A. Mandich	Telephone No. / E-mail: marissa.sump@arcadis.com; amyssa.mandich@arcadis.com
Address: 28550 Cabot Dr, Ste 500	Sampler's Signature: x Amyssa Mandich	Analysis (Attach list if more space is needed)
City: Novi; State: MI; Zip Code: 48377	Printed Name: Amyssa Mandich	
Project Name: KACE Landing PFAS Investigation		
Project No.: 30214036.0370B	P.O. No.	

Sample ID / Description (Containers for each sample may be combined on one line.)	Collection Date(s)	Collection Time (Military)	Grab/Composite	Matrix: Aqueous	Matrix: Soil	Matrix: Non-Aqueous	No. of Containers by Preservative Type: Unpres	HNO3	H2SO4	HCl	NaOH	Na2S2O3	Other (Specify)	PFAS/PFOA MI 537M
MichAve-MH-3_010224	7/2/24	0920	G	X			6							6
Verlinden-MH-5_070224	7/2/24	0940	G	X			2							2
Usborn-MH-1_070224	7/2/24	1005	G	X			2							2
DUP-01_070224	7/2/24	—	G	X			2							2
P3-MH-284_070224	7/2/24	1115	G	X			2							2
P2-MH-2_070224	7/2/24	1210	G	X			2							2
P2-MH-W_070224	7/2/24	1255	G	X			2							2
FB-01_070224	7/2/24	1307	G	X			2							2
EB-01_070224	7/2/24	1312	G	X			2							2

ZG03024
KBs2

Remarks / Cooler I.D.:
MS/MSD
Please provide all results + EDD.

Turn Around Time Required (Prior lab approval required for expedited TAT.): X Standard ☐ Rush (Specify)

Sample Disposal: ☐ Return to Client X Disposal by Lab

Possible Hazard Identification: X Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison ☐ Unknown

QC Requirements (Specify):

	Date	Time		Date	Time
1. Relinquished by: Amyssa Mandich/Arcadis	7/2/24	1535	1. Received by: FedEX	7/2/24	1535
2. Relinquished by	Date	Time	2. Received by	Date	Time
3. Relinquished by	Date	Time	3. Received by	Date	Time
4. Relinquished by: FEDEX	Date 7/3/24	Time 0955	4. Laboratory received by	Date 7/3/24	Time 0955

Note: All samples are retained for four weeks from receipt unless other arrangements are made.

LAB USE ONLY
Received on ice (Circle): (Yes) No Ice Pack
Receipt Temp: 2.6 °C
Temp Blank: X Y ☐ N

DISTRIBUTION: WHITE & YELLOW-Return to laboratory with Sample(s); PINK-Field/Client Copy

Document Number: MEDC3N2-01

PACE ANALYTICAL SERVICES, LLC

DC#_Title: ENV-FRM-WCOL-0286 v02_Samples Receipt Checklist (SRC)
Effective Date: 8/2/2022

Sample Receipt Checklist (SRC)

Client: AR(41)i) Cooler Inspected by/date: CG / 7/3/24 Lot #: 2063024

Means of receipt: ☐ Pace ☐ Client ☐ UPS ☒ FedEx ☐ Other: ____

☒ Yes	☐ No	1. Were custody seals present on the cooler?
☒ Yes	☐ No ☐ NA	2. If custody seals were present, were they intact and unbroken?

pH Strip ID: ____ Chlorine Strip ID: ____ Tested by: ____
Original temperature upon receipt / Derived (Corrected) temperature upon receipt %Solid Snap-Cup ID: ____
3.6 / 3.6 °C ____ / ____ °C ____ / ____ °C ____ / ____ °C
Method: ☒ Temperature Blank ☐ Against Bottles IR Gun ID: 8 IR Gun Correction Factor: 0 °C
Method of coolant: ☒ Wet Ice ☐ Ice Packs ☐ Dry Ice ☐ None

☒ Yes	☐ No	☐ NA	3. Were all coolers received at or below 6.0°C? If no, was Project Manager notified? PM was Notified by: phone / email / face-to-face (circle one).
☒ Yes	☐ No	☐ NA	4. Is the commercial courier's packing slip attached to this form?
☒ Yes	☐ No		5. Were proper custody procedures (relinquished/received) followed?
☒ Yes	☐ No		6. Were sample IDs listed on the COC and all sample containers?
☒ Yes	☐ No		7. Was collection date & time listed on the COC and all sample containers?
☒ Yes	☐ No		8. Did all container label information (ID, date, time) agree with the COC?
☒ Yes	☐ No		9. Were tests to be performed listed on the COC?
☒ Yes	☐ No		10. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)? ____
☒ Yes	☐ No		11. Was adequate sample volume available?
☒ Yes	☐ No		12. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
☒ Yes	☐ No		13. Were all samples containers accounted for? (No missing/excess)
☐ Yes	☐ No	☒ NA	14. Were VOA, 8015C and RSK-175 samples free of bubbles >"pea-size" (¼"or 6mm in diameter) in any of the VOA vials?
☐ Yes	☐ No	☒ NA	15. Were all DRO/metals/nutrient samples received at a pH of < 2?
☐ Yes	☐ No	☒ NA	16. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
☐ Yes	☐ No	☒ NA	17. Were all applicable NH_3/TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?
☒ Yes	☐ No	☐ NA	18. Was the quote number listed on the container label? If yes, Quote # 25015

Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)

Sample(s) ____ were received incorrectly preserved and were adjusted accordingly in sample receiving with ____ mL of circle one: H_2SO_4, HNO_3, HCl, NaOH using SR # ____. Time of preservation ____. If more than one preservative is needed, please note in the comments below.

Sample(s) ____ were received with bubbles >6 mm in diameter.

Samples(s) ____ were received with TRC > 0.5 mg/L (If #19 is *no*) and were adjusted accordingly in sample receiving with sodium thiosulfate ($Na_2S_2O_3$) with Unique ID: ____.

Comments:

Qualtrax ID: 56360 Pace® Analytical Services, LLC Page 1 of 1

Appendix C-1

Low-Flow Groundwater Sampling Logs

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-12-21			**Date**	2/13/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	35.1 degrees F and Cloudy. The wind is blowing at 6.9 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	65.84	**Total Depth (ft-bmp)**	78.1	**Water Column (ft)**	12.26	**Gallons in Well**	1.99
Purge Start	13:35	**Pump Intake (ft-bmp)**	75.5	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	14:30	**Volumes Purged**	0.73	**Sample ID**	MW-12-21_021324	**Sampled by**	Billy Cobern
Sample Time	14:30	**Gallons Purged**	1.452946	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
13:35	0	0	100	65.84	0.00	0	0	0	0	0	0	Clear	None
13:40	5	5	100	66.15	0.13	7.28	1.944	686.67	9.24	6.6	-83.9	Clear	None
13:45	5	10	100	66.15	0.26	6.95	1.903	521.96	1.83	9.1	-99.4	Clear	None
13:50	5	15	100	66.15	0.40	6.93	1.904	145.93	1.35	9	-101.9	Clear	None
13:55	5	20	100	66.15	0.53	6.92	1.909	69.73	0.49	7.6	-110.8	Clear	None
14:00	5	25	100	66.15	0.66	6.92	1.885	56.83	0.52	7	-113.8	Clear	None
14:05	5	30	100	66.15	0.79	6.92	1.883	48.82	0.59	6.9	-115.2	Clear	None
14:10	5	35	100	66.15	0.92	6.92	1.875	42.18	0.64	7.3	-116.9	Clear	None
14:15	5	40	100	66.15	1.06	6.92	1.876	36.35	0.68	7.4	-116.9	Clear	None
14:20	5	45	100	66.15	1.19	6.93	1.879	32.84	0.7	7.3	-117.2	Clear	None
14:25	5	50	100	66.15	1.32	6.93	1.878	31.55	0.71	7.2	-117.6	Clear	None
14:30	5	55	100	66.15	1.45	6.93	1.879	32.41	0.71	7.1	-118.1	Clear	None

Constituent Sampled	Container	Number	Preservative
SERDP	1L Plastic	2	None
1,4-Dioxane 8270D SIM	40 mL Glass	3	None

Comments: Collect SERDP sample after 1,4 dioxane. Lowered pump to bottom of well for SERDP sample.

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-13-22			**Date**	2/13/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	32 degrees F/ Overcast			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	69.62	**Total Depth (ft-bmp)**	96.1	**Water Column (ft)**	26.48	**Gallons in Well**	4.30
Purge Start	11:40	**Pump Intake (ft-bmp)**	93.5	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	12:45	**Volumes Purged**	0.68	**Sample ID**	MW-13-22_021324	**Sampled by**	Donald Richmond
Sample Time	12:40	**Gallons Purged**	2.9058926	**Replicate/ Code No.**	DUP-02_021324	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
11:50	0	0	200	69.62	0.53	6.87	1.347	34	0.46	9.8	250.7	Clear	None
11:55	5	5	200	69.62	0.79	6.89	1.363	27	0.08	9.9	220	Clear	None
12:00	5	10	200	69.62	1.06	6.9	1.392	29	0	10	94	Clear	None
12:05	5	15	200	69.62	1.32	6.91	1.404	30	0	10.4	28	Clear	None
12:10	5	20	200	69.62	1.59	6.91	1.4	28	0	10.3	-22	Clear	None
12:15	5	25	200	69.62	1.85	6.91	1.41	31	0	10.3	-32	Clear	None
12:20	5	30	200	69.62	2.11	6.91	1.411	31	0	10	-39	Clear	None
12:25	5	35	200	69.62	2.38	6.91	1.452	109	0	10.1	-42	Clear	None
12:30	5	40	200	69.62	2.64	6.91	1.465	116	0	10.5	-48.1	Clear	None
12:35	5	45	200	69.62	2.91	6.92	1.457	109	0	10.6	-49	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	6	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-13-34			**Date**	2/13/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	32 degrees F/ Overcast			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	65.57	**Total Depth (ft-bmp)**	79.96	**Water Column (ft)**	14.39	**Gallons in Well**	2.34
Purge Start	15:10	**Pump Intake (ft-bmp)**	76.5	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	16:00	**Volumes Purged**	0.90	**Sample ID**	MW-13-34_021324	**Sampled by**	Donald Richmond
Sample Time	15:55	**Gallons Purged**	2.113376	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
15:20	0	0	200	65.57	0.53	7.15	1.746	279	0.46	11.2	-46.8	Clear	None
15:25	5	5	200	65.57	0.79	7.08	1.818	350	0.02	11.2	-66.8	Clear	None
15:30	5	10	200	65.57	1.06	7.07	1.818	395	0	11.1	-68.7	Clear	None
15:35	5	15	200	65.57	1.32	7.07	1.838	535	0	11.1	-70.6	Clear	None
15:40	5	20	200	65.57	1.59	7.07	1.835	633	0	11.2	-72.1	Clear	None
15:45	5	25	200	65.57	1.85	7.07	1.824	635	0	11	-72.9	Clear	None
15:50	5	30	200	65.57	2.11	7.07	1.824	635	0	11	-73.4	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot

1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2

Condition of Well: Good condition

Well Completion: Stick-up

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-16-78			**Date**	2/12/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	27 degrees F / Sunny			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	64.79	**Total Depth (ft-bmp)**	76.17	**Water Column (ft)**	11.38	**Gallons in Well**	1.85
Purge Start	15:20	**Pump Intake (ft-bmp)**	73.5	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	15:55	**Volumes Purged**	0.71	**Sample ID**	MW-16-78_021224	**Sampled by**	Donald Richmond
Sample Time	15:50	**Gallons Purged**	1.32086	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
15:30	0	0	200	65.09	0.53	7.14	1.129	40	0.09	11.7	-47.1	Clear	None
15:35	5	5	200	65.09	0.79	7.13	1.117	32	0	11.4	-53.1	Clear	None
15:40	5	10	200	65.09	1.06	7.13	1.117	32	0	11.3	-54.7	Clear	None
15:45	5	15	200	65.09	1.32	7.13	1.117	32	0	11.3	-55.4	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-19-121			**Date**	2/12/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	27 degrees F / Sunny			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	65.09	**Total Depth (ft-bmp)**	73.6	**Water Column (ft)**	8.51	**Gallons in Well**	1.38
Purge Start	14:10	**Pump Intake (ft-bmp)**	70	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	15:00	**Volumes Purged**	1.34	**Sample ID**	MW-19-121_021224	**Sampled by**	Donald Richmond
Sample Time	14:50	**Gallons Purged**	1.849204	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
14:15	0	0	200	65.09	0.26	7.91	2.051	19	9.71	13.4	110	Clear	None
14:20	5	5	200	65.09	0.53	7.88	1.969	10.64	9.46	13.7	167.8	Clear	None
14:25	5	10	200	65.09	0.79	7.75	1.973	7.7	8.94	13.9	191.4	Clear	None
14:30	5	15	200	65.09	1.06	7.69	1.984	6.71	8.52	13.7	208.7	Clear	None
14:35	5	20	200	65.09	1.32	7.67	1.967	6.57	8.33	13.8	218.9	Clear	None
14:40	5	25	200	65.09	1.59	7.66	1.975	6.2	8.21	13.9	223	Clear	None
14:45	5	30	200	65.09	1.85	7.65	1.964	5.9	8.08	13.8	229.5	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot

1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2

Condition of Well: Good condition

Well Completion: Stick-up

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-19-122			**Date**	2/12/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	39.0 degrees F and Clear. The wind is blowing W at 6.9 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	63.70	**Total Depth (ft-bmp)**	66.8	**Water Column (ft)**	3.10	**Gallons in Well**	0.50
Purge Start	14:55	**Pump Intake (ft-bmp)**	66	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	15:35	**Volumes Purged**	2.11	**Sample ID**	MW-19-122_021224	**Sampled by**	Billy Cobern
Sample Time	15:35	**Gallons Purged**	1.056688	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
14:55	0	0	100	63.70	0.00	0	0	0	0	0	0	Clear	None
15:00	5	5	100	64.00	0.13	6.69	5.345	1487.96	4.61	12.4	-30.3	Clear	None
15:05	5	10	100	64.00	0.26	6.67	5.309	989.42	2.83	12.6	-38.2	Clear	None
15:10	5	15	100	64.00	0.40	6.67	5.191	364.41	2.47	13.4	-38.2	Clear	None
15:15	5	20	100	64.00	0.53	6.69	5.158	84.62	3.51	12.6	-35.3	Clear	None
15:20	5	25	100	64.00	0.66	6.67	5.128	59.26	2.95	12.2	-39.2	Clear	None
15:25	5	30	100	64.00	0.79	6.65	5.104	44.28	2.87	12.8	-38.3	Clear	None
15:30	5	35	100	64.00	0.92	6.65	5.123	44.39	2.85	12.8	-36.6	Clear	None
15:35	5	40	100	64.00	1.06	6.65	5.125	43.47	2.88	12.9	-35.2	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-19-123			**Date**	2/12/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	30.9 degrees F and Clear. The wind is blowing S at 6.9 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	63.67	**Total Depth (ft-bmp)**	73.8	**Water Column (ft)**	10.13	**Gallons in Well**	1.65
Purge Start	11:10	**Pump Intake (ft-bmp)**	71	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	11:40	**Volumes Purged**	0.48	**Sample ID**	MW-19-123_021224	**Sampled by**	Billy Cobern
Sample Time	11:40	**Gallons Purged**	0.7925162	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
11:10	0	0	100	63.67	0.00	0	0	0	0	0	0	Clear	None
11:15	5	5	100	64.00	0.13	6.81	2.246	30.55	6.7	12.2	-31.4	Clear	None
11:20	5	10	100	64.00	0.26	6.8	2.207	20.58	6.6	12	-27	Clear	None
11:25	5	15	100	64.00	0.40	6.8	2.176	11.11	6.59	11.8	-21.5	Clear	None
11:30	5	20	100	64.00	0.53	6.79	2.174	10.35	6.54	12.1	-19.4	Clear	None
11:35	5	25	100	64.00	0.66	6.79	2.201	9.4	6.49	12	-19.7	Clear	None
11:40	5	30	100	64.00	0.79	6.78	2.21	9.56	6.44	12.1	-18.9	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot

1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2

Condition of Well: Good condition

Well Completion: Stick-up

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-20-126			**Date**	2/12/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	27 degrees F / Sunny			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	72.60	**Total Depth (ft-bmp)**	75.43	**Water Column (ft)**	2.83	**Gallons in Well**	0.46
Purge Start	11:00	**Pump Intake (ft-bmp)**	72.5	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	11:50	**Volumes Purged**	4.59	**Sample ID**	MW-20-126_021224	**Sampled by**	Donald Richmond
Sample Time	11:40	**Gallons Purged**	2.113376	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
11:15	0	0	200	72.60	0.79	6.95	3.146	116	2.79	12.5	187	Brown	None
11:20	5	5	200	72.60	1.06	6.97	3.071	47	2.46	12.2	186.1	Brown	None
11:25	5	10	200	72.60	1.32	6.97	3.111	45	2.5	12.6	185.7	Brown	None
11:30	5	15	200	72.60	1.59	6.97	3.084	36	2.49	12.3	185.9	Brown	None
11:35	5	20	200	72.60	1.85	6.96	3.095	35	2.41	12.6	184.2	Brown	None
11:40	5	25	200	72.60	2.11	6.96	3.089	34	2.4	12.9	183.5	Brown	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot

1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2

Condition of Well: Good condition

Well Completion: Stick-up

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-20-127			**Date**	2/12/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	27 degrees F / Sunny			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	65.70	**Total Depth (ft-bmp)**	78.66	**Water Column (ft)**	12.96	**Gallons in Well**	2.11
Purge Start	12:40	**Pump Intake (ft-bmp)**	76.1	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	13:45	**Volumes Purged**	1.38	**Sample ID**	MW-20-127_021224	**Sampled by**	Donald Richmond
Sample Time	13:40	**Gallons Purged**	2.9058926	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
12:45	0	0	200	65.70	0.26	6.87	2.471	10.06	2.16	12.2	179.1	Clear	None
12:50	5	5	200	65.70	0.53	6.79	2.527	7.54	1.52	12.4	162.6	Clear	None
12:55	5	10	200	65.70	0.79	6.74	2.567	6.88	1.02	12.3	120.7	Clear	None
13:00	5	15	200	65.70	1.06	6.72	2.574	6.75	0.58	12.1	87.5	Clear	None
13:05	5	20	200	65.70	1.32	6.71	2.615	6.38	0.33	12.4	68.2	Clear	None
13:10	5	25	200	65.70	1.59	6.71	2.614	5.94	0.25	12.3	60.2	Clear	None
13:15	5	30	200	65.70	1.85	6.7	2.64	5.88	0.13	12.4	50.6	Clear	None
13:20	5	35	200	65.70	2.11	6.7	2.637	5.62	0.06	12.3	43.9	Clear	None
13:25	5	40	200	65.70	2.38	6.7	2.63	5.61	0	12.1	39.1	Clear	None
13:30	5	45	200	65.70	2.64	6.7	2.665	5.64	0	12.3	36	Clear	None
13:35	5	50	200	65.70	2.91	6.7	2.665	5.48	0	12.1	34	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-20-129			**Date**	2/12/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	37.9 degrees F and Mostly Clear. The wind is blowing SW at 6.9 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	60.88	**Total Depth (ft-bmp)**	71	**Water Column (ft)**	10.12	**Gallons in Well**	1.64
Purge Start	13:30	**Pump Intake (ft-bmp)**	68.5	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	14:25	**Volumes Purged**	0.89	**Sample ID**	MW-20-129_021224	**Sampled by**	Billy Cobern
Sample Time	14:25	**Gallons Purged**	1.452946	**Replicate/ Code No.**	MW-20-129_021224	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
13:30	0	0	100	60.88	0.00	0	0	0	0	0	0	Clear	None
13:35	5	5	100	61.75	0.13	7.34	1.425	114.85	9.73	8.6	-70.6	Clear	None
13:40	5	10	100	62.35	0.26	7.08	1.792	122.96	4.28	9.1	-86.8	Clear	None
13:45	5	15	100	62.99	0.40	7.04	1.864	117.42	1.12	8.5	-108.4	Clear	None
13:50	5	20	100	63.55	0.53	7.03	1.851	104.37	0.72	8.7	-111.4	Clear	None
13:55	5	25	100	64.05	0.66	7.03	1.8	86.57	0.58	8.9	-111.8	Clear	None
14:00	5	30	100	64.51	0.79	7.02	1.732	69.04	0.65	9.6	-107.1	Clear	None
14:05	5	35	100	64.94	0.92	7.02	1.684	54.31	0.75	9.4	-102.6	Clear	None
14:10	5	40	100	65.41	1.06	7.01	1.628	50.38	0.91	9.6	-96.6	Clear	None
14:15	5	45	100	65.80	1.19	7.01	1.601	50.41	1.03	9.8	-93.7	Clear	None
14:20	5	50	100	66.21	1.32	7.01	1.597	48.91	1.08	9.8	-92.5	Clear	None
14:25	5	55	100	66.57	1.45	7.01	1.594	46.85	1.09	9.8	-92	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	9	HCL

Comments: Didn't meet drawdown requirements

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-20-131			**Date**	2/13/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	35.1 degrees F and Cloudy. The wind is blowing W/NW at 9.2 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	4.53	**Total Depth (ft-bmp)**	8.63	**Water Column (ft)**	4.10	**Gallons in Well**	0.67
Purge Start	15:20	**Pump Intake (ft-bmp)**	7.63	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	15:55	**Volumes Purged**	2.76	**Sample ID**	MW-20-131_021324	**Sampled by**	Austin Westhuis
Sample Time	15:50	**Gallons Purged**	1.849204	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
15:25	0	0	200	5.15	0.26	7.06	3.841	25.04	0.17	7.2	93.5	Clear	None
15:30	5	5	200	5.15	0.53	7.07	3.858	11.81	0.11	7.3	85.3	Clear	None
15:35	5	10	200	5.15	0.79	7.07	3.878	4.78	0.09	7.4	81.2	Clear	None
15:40	5	15	200	5.15	1.06	7.07	3.897	3.18	0.09	7.4	78.8	Clear	None
15:45	5	20	200	5.15	1.32	7.07	3.893	2.78	0.09	7.5	77.3	Clear	None
15:50	5	25	200	5.15	1.59	7.07	3.879	2.43	0.09	7.5	74.3	Clear	None

Constituent Sampled	Container	Number	Preservative
VOCs	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: See figure.
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 10G200

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-20-132			**Date**	2/13/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	35.1 degrees F and Cloudy. The wind is blowing W/NW at 13.9 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	4.68	**Total Depth (ft-bmp)**	10.8	**Water Column (ft)**	6.12	**Gallons in Well**	0.99
Purge Start	14:20	**Pump Intake (ft-bmp)**	8.3	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	15:00	**Volumes Purged**	2.13	**Sample ID**	MW-20-132_021324	**Sampled by**	Austin Westhuis
Sample Time	14:55	**Gallons Purged**	2.113376	**Replicate/ Code No.**	DUP-03_021324	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
14:25	0	0	200	5.00	0.26	7.15	2.752	48.31	0.09	8.2	26.7	Clear	None
14:30	5	5	200	5.00	0.53	7.15	2.753	23.68	0.09	8.1	17.8	Clear	None
14:35	5	10	200	5.00	0.79	7.15	2.754	12.76	0.08	8.1	3.9	Clear	None
14:40	5	15	200	5.00	1.06	7.14	2.756	5.58	0.08	8.2	-5.1	Clear	None
14:45	5	20	200	5.00	1.32	7.14	2.762	3.91	0.07	8.3	-8.2	Clear	None
14:50	5	25	200	5.00	1.59	7.14	2.753	3.62	0.07	8.2	-12.6	Clear	None
14:55	5	30	200	5.00	1.85	7.14	2.747	3.02	0.07	8.2	-16.8	Clear	None

Constituent Sampled	Container	Number	Preservative
VOCs	40 mL Glass	6	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: See figure.
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-143			**Date**	2/12/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	39.0 degrees F and Clear. The wind is blowing W at 6.9 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	16.85	**Total Depth (ft-bmp)**	31.05	**Water Column (ft)**	14.20	**Gallons in Well**	2.31
Purge Start	14:15	**Pump Intake (ft-bmp)**	28.55	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	15:05	**Volumes Purged**	1.14	**Sample ID**	MW-22-143_021224	**Sampled by**	Austin Westhuis
Sample Time	15:00	**Gallons Purged**	2.641721	**Replicate/ Code No.**	DUP-04_021224	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
14:20	0	0	200	17.06	0.26	7.04	2.225	253.1	0.31	12.2	75.3	Clear	None
14:25	5	5	200	17.06	0.53	7.05	2.216	141.61	0.24	12.4	16.7	Clear	None
14:30	5	10	200	17.06	0.79	7.05	2.26	55.25	0.26	12.4	-20.7	Clear	None
14:35	5	15	200	17.06	1.06	7.05	2.282	51.22	0.24	12.4	-36.6	Clear	None
14:40	5	20	200	17.06	1.32	7.04	2.358	46.82	0.22	12.4	-37.6	Clear	None
14:45	5	25	200	17.06	1.59	7.05	2.37	27.63	0.21	12.4	-41.5	Clear	None
14:50	5	30	200	17.06	1.85	7.05	2.391	25.15	0.21	12.4	-43.7	Clear	None
14:55	5	35	200	17.06	2.11	7.04	2.412	24.56	0.21	12.4	-47.2	Clear	None
15:00	5	40	200	17.06	2.38	7.04	2.43	23.96	0.21	12.3	-49.7	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	4	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot

1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6

Condition of Well: Good condition

Well Completion: Flush mount

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-144			**Date**	2/14/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	30.0 degrees F and Cloudy. The wind is blowing undefined at 0.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	11.53	**Total Depth (ft-bmp)**	24.5	**Water Column (ft)**	12.97	**Gallons in Well**	2.11
Purge Start	10:50	**Pump Intake (ft-bmp)**	22	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	11:35	**Volumes Purged**	0.56	**Sample ID**	MW-22-144_021424	**Sampled by**	Billy Cobern
Sample Time	11:35	**Gallons Purged**	1.188774	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
10:50	0	0	100	11.53	0.00	0	0	0	0	0	0	Clear	None
10:55	5	5	100	11.89	0.13	7.25	1.221	314.25	2.01	9.8	-71.6	Clear	None
11:00	5	10	100	11.85	0.26	7.23	1.197	188.78	1.41	9.9	-76.2	Clear	None
11:05	5	15	100	11.85	0.40	7.18	1.183	35.51	0.85	10.1	-83.8	Clear	None
11:10	5	20	100	11.85	0.53	7.18	1.184	15.98	2.54	9.8	-66.1	Clear	None
11:15	5	25	100	11.85	0.66	7.13	1.184	17.69	0.83	9.9	-84	Clear	None
11:20	5	30	100	11.85	0.79	7.12	1.176	17.68	0.6	10.1	-88.7	Clear	None
11:25	5	35	100	11.85	0.92	7.12	1.177	9.65	0.47	10.2	-92.6	Clear	None
11:30	5	40	100	11.85	1.06	7.12	1.176	9.31	0.44	10.2	-93	Clear	None
11:35	5	45	100	11.85	1.19	7.12	1.175	9.06	0.46	10.2	-93.7	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Off site
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-145			**Date**	2/12/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	39.9 degrees F and Clear. The wind is blowing W at 6.9 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	11.72	**Total Depth (ft-bmp)**	14.85	**Water Column (ft)**	3.13	**Gallons in Well**	0.51
Purge Start	15:35	**Pump Intake (ft-bmp)**	13.85	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	16:25	**Volumes Purged**	5.18	**Sample ID**	MW-22-145_021224	**Sampled by**	Austin Westhuis
Sample Time	16:20	**Gallons Purged**	2.641721	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
15:40	0	0	200	11.75	0.26	7.15	0.703	168.42	2.3	10	60.3	Clear	None
15:45	5	5	200	11.75	0.53	7.1	0.684	92.9	2.08	9.8	67.2	Clear	None
15:50	5	10	200	11.75	0.79	7.07	0.674	65.73	1.98	9.8	84.2	Clear	None
15:55	5	15	200	11.75	1.06	7.07	0.669	54.14	1.9	9.6	92.8	Clear	None
16:00	5	20	200	11.75	1.32	7.05	0.668	40.6	1.88	9.6	95.1	Clear	None
16:05	5	25	200	11.75	1.59	7.05	0.667	35.08	1.83	9.7	96.7	Clear	None
16:10	5	30	200	11.75	1.85	7.04	0.667	27.66	1.83	9.7	97.2	Clear	None
16:15	5	35	200	11.75	2.11	7.04	0.668	25.58	1.77	9.6	102.6	Clear	None
16:20	5	40	200	11.75	2.38	7.04	0.669	25.03	1.77	9.6	103.6	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-146			**Date**	2/14/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	36.0 degrees F and Mostly Cloudy. The wind is blowing N at 4.7 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	4.17	**Total Depth (ft-bmp)**	10.5	**Water Column (ft)**	6.33	**Gallons in Well**	1.03
Purge Start	13:15	**Pump Intake (ft-bmp)**	8	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	14:05	**Volumes Purged**	1.28	**Sample ID**	MW-22-146_021424	**Sampled by**	Billy Cobern
Sample Time	14:05	**Gallons Purged**	1.32086	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
13:15	0	0	100	4.17	0.00	0	0	0	0	0	0	Clear	None
13:20	5	5	100	4.48	0.13	7.5	0.879	332.32	8.63	7.9	-53.4	Clear	None
13:25	5	10	100	4.48	0.26	7.43	0.869	83.74	8.15	7.7	-51.5	Clear	None
13:30	5	15	100	4.48	0.40	7.42	0.868	46.57	8.1	7.6	-49.6	Clear	None
13:35	5	20	100	4.48	0.53	7.41	0.868	38.41	8.07	7.5	-49.4	Clear	None
13:40	5	25	100	4.48	0.66	7.41	0.868	27.58	8.05	7.4	-49.7	Clear	None
13:45	5	30	100	4.48	0.79	7.41	0.868	22.22	7.99	7.4	-49.6	Clear	None
13:50	5	35	100	4.48	0.92	7.41	0.868	18.53	7.95	7.2	-50.1	Clear	None
13:55	5	40	100	4.48	1.06	7.41	0.866	16.19	7.95	7.3	-49.8	Clear	None
14:00	5	45	100	4.48	1.19	7.41	0.868	17.05	7.95	7.2	-50.1	Clear	None
14:05	5	50	100	4.48	1.32	7.41	0.866	16.78	7.93	7.3	-50	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Off site
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-147			**Date**	2/14/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	37.9 degrees F and Clear. The wind is blowing W/NW at 5.8 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	7.83	**Total Depth (ft-bmp)**	12.2	**Water Column (ft)**	4.37	**Gallons in Well**	0.71
Purge Start	15:30	**Pump Intake (ft-bmp)**	11	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	16:00	**Volumes Purged**	1.12	**Sample ID**	MW-22-147_021424	**Sampled by**	Billy Cobern
Sample Time	16:00	**Gallons Purged**	0.7925162	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
15:30	0	0	100	7.83	0.00	0	0	0	0	0	0	Clear	None
15:35	5	5	100	7.99	0.13	7.14	1.321	23.43	4.73	8.1	-41.3	Clear	None
15:40	5	10	100	8.04	0.26	7.16	1.323	16.42	4.62	8.2	-52.4	Clear	None
15:45	5	15	100	8.04	0.40	7.15	1.322	11.39	4.52	8.3	-53.5	Clear	None
15:50	5	20	100	8.04	0.53	7.15	1.328	9.41	4.36	8.2	-55.3	Clear	None
15:55	5	25	100	8.04	0.66	7.15	1.33	9.13	4.35	8.2	-55.6	Clear	None
16:00	5	30	100	8.04	0.79	7.15	1.33	9.09	4.34	8.2	-55.9	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot

1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Off site

Well Locked at Arrival: yes

Condition of Well: Good condition

Well Locked at Departure: yes

Well Completion: Flush mount

Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-148			**Date**	2/14/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	37.0 degrees F and Mostly Clear.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	25.05	**Total Depth (ft-bmp)**	29.3	**Water Column (ft)**	4.25	**Gallons in Well**	0.69
Purge Start	14:30	**Pump Intake (ft-bmp)**	28	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	15:15	**Volumes Purged**	1.72	**Sample ID**	MW-22-148_021424	**Sampled by**	Billy Cobern
Sample Time	15:15	**Gallons Purged**	1.188774	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
14:30	0	0	100	25.05	0.00	0	0	0	0	0	0	Clear	None
14:35	5	5	100	25.55	0.13	7.28	0.891	51.55	4.01	9.3	-64.6	Clear	None
14:40	5	10	100	25.95	0.26	7.22	0.882	37.28	2.67	10.1	-70.3	Clear	None
14:45	5	15	100	26.29	0.40	7.21	0.888	25.21	1.85	10.4	-74.4	Clear	None
14:50	5	20	100	26.59	0.53	7.2	0.91	16.26	1.38	10.8	-80.1	Clear	None
14:55	5	25	100	26.86	0.66	7.2	9.18	12.46	1.26	10.6	-82.2	Clear	None
15:00	5	30	100	27.09	0.79	7.2	0.919	9.89	1.11	10.4	-84.1	Clear	None
15:05	5	35	100	27.32	0.92	7.2	0.92	9.35	1.08	10.3	-85.8	Clear	None
15:10	5	40	100	27.53	1.06	7.2	0.92	9.63	1.04	10.2	-87.1	Clear	None
15:15	5	45	100	27.73	1.19	7.21	0.92	9.42	1.06	10.2	-87.9	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None

Comments: Didn't meet drawdown requirements

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Off site
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-149			**Date**	2/14/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	30.0 degrees F and Cloudy. The wind is blowing undefined at 0.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	5.47	**Total Depth (ft-bmp)**	9.91	**Water Column (ft)**	4.44	**Gallons in Well**	0.72
Purge Start	10:15	**Pump Intake (ft-bmp)**	8.91	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	10:45	**Volumes Purged**	2.20	**Sample ID**	MW-22-149_021424	**Sampled by**	Austin Westhuis
Sample Time	10:40	**Gallons Purged**	1.585032	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
10:20	0	0	200	5.47	0.26	7.31	0.371	5.68	7.8	8.1	244.7	Clear	None
10:25	5	5	200	5.47	0.53	7.3	0.371	5.11	7.78	8	247.2	Clear	None
10:30	5	10	200	5.47	0.79	7.29	0.371	4.94	7.81	8	249	Clear	None
10:35	5	15	200	5.47	1.06	7.3	0.372	4.43	7.85	8	251.4	Clear	None
10:40	5	20	200	5.47	1.32	7.3	0.374	4.03	7.86	8	252.6	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: See figure.
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 2035

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-150			**Date**	2/14/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	30.0 degrees F and Cloudy. The wind is blowing undefined at 0.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	5.38	**Total Depth (ft-bmp)**	17.94	**Water Column (ft)**	12.56	**Gallons in Well**	2.04
Purge Start	11:10	**Pump Intake (ft-bmp)**	15.44	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	11:50	**Volumes Purged**	1.04	**Sample ID**	MW-22-150_021424	**Sampled by**	Austin Westhuis
Sample Time	11:45	**Gallons Purged**	2.113376	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
11:15	0	0	200	6.89	0.26	7.29	2.996	35.16	0.11	9.4	234.6	Clear	None
11:20	5	5	200	6.94	0.53	7.3	2.998	13.52	0.09	9.2	200.2	Clear	None
11:25	5	10	200	6.98	0.79	7.31	2.998	7.64	0.09	9.2	143	Clear	None
11:30	5	15	200	7.00	1.06	7.31	3.009	6.69	0.09	9.2	108.6	Clear	None
11:35	5	20	200	7.00	1.32	7.31	3.009	6.23	0.09	9.2	96.6	Clear	None
11:40	5	25	200	7.00	1.59	7.31	3.013	5.89	0.09	9.3	91.9	Clear	None
11:45	5	30	200	7.01	1.85	7.31	3.033	5.47	0.09	9.4	87.1	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: See figure.
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 2035

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-151			**Date**	2/14/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	33.1 degrees F and Cloudy. The wind is blowing W/NW at 8.1 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	6.18	**Total Depth (ft-bmp)**	14.92	**Water Column (ft)**	8.74	**Gallons in Well**	1.42
Purge Start	12:15	**Pump Intake (ft-bmp)**	12.42	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	13:05	**Volumes Purged**	1.86	**Sample ID**	MW-22-151_021424	**Sampled by**	Austin Westhuis
Sample Time	13:00	**Gallons Purged**	2.641721	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
12:20	0	0	200	6.88	0.26	6.81	2	492.59	0.29	10.9	-16.1	Clear	None
12:25	5	5	200	6.97	0.53	6.81	2	357.11	0.19	11	-18.9	Clear	None
12:30	5	10	200	7.05	0.79	6.82	1.982	290.37	0.12	10.8	-23.7	Clear	None
12:35	5	15	200	7.08	1.06	6.82	1.987	219.44	0.1	10.9	-28	Clear	None
12:40	5	20	200	7.09	1.32	6.83	1.985	187.49	0.09	10.9	-31	Clear	None
12:45	5	25	200	7.09	1.59	6.83	1.991	164.04	0.09	10.9	-32.9	Clear	None
12:50	5	30	200	7.09	1.85	6.83	1.982	138.59	0.09	10.9	-35.3	Clear	None
12:55	5	35	200	7.09	2.11	6.83	1.991	137.96	0.09	11	-36.5	Clear	None
13:00	5	40	200	7.09	2.38	6.84	1.982	132.94	0.09	11	-38.2	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: See figure.
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 2035

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-152			**Date**	2/14/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	36.0 degrees F and Mostly Cloudy. The wind is blowing N at 4.7 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	7.57	**Total Depth (ft-bmp)**	14.9	**Water Column (ft)**	7.33	**Gallons in Well**	1.19
Purge Start	13:25	**Pump Intake (ft-bmp)**	12.4	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	14:00	**Volumes Purged**	1.55	**Sample ID**	MW-22-152_021424	**Sampled by**	Austin Westhuis
Sample Time	13:50	**Gallons Purged**	1.849204	**Replicate/ Code No.**	DUP-05_021424	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
13:30	0	0	200	7.57	0.26	7.04	0.674	14.08	0.49	11	91.3	Clear	None
13:35	5	5	200	7.57	0.53	7.03	0.676	8.94	0.23	11.1	73.3	Clear	None
13:40	5	10	200	7.57	0.79	7.03	0.675	7.85	0.21	11.1	65.7	Clear	None
13:45	5	15	200	7.57	1.06	7.03	0.676	7.13	0.21	11.1	61	Clear	None
13:50	5	20	200	7.57	1.32	7.03	0.676	7.07	0.2	11.1	57.8	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	4	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 2035

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-154			**Date**	2/13/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	35.1 degrees F and Cloudy. The wind is blowing at 6.9 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	4.76	**Total Depth (ft-bmp)**	10.58	**Water Column (ft)**	5.82	**Gallons in Well**	0.95
Purge Start	13:20	**Pump Intake (ft-bmp)**	8.08	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	13:55	**Volumes Purged**	1.95	**Sample ID**	MW-22-154_021324	**Sampled by**	Austin Westhuis
Sample Time	13:45	**Gallons Purged**	1.849204	**Replicate/ Code No.**	MW-22-154_021324	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
13:25	0	0	200	4.76	0.26	7.05	2.886	7.94	0.16	8.1	41.1	Clear	None
13:30	5	5	200	4.76	0.53	7.06	2.874	5.38	0.12	7.9	43.6	Clear	None
13:35	5	10	200	4.76	0.79	7.08	2.863	4.23	0.11	7.7	60.9	Clear	None
13:40	5	15	200	4.76	1.06	7.08	2.856	4.09	0.11	7.6	67.2	Clear	None
13:45	5	20	200	4.76	1.32	7.09	2.86	3.81	0.1	7.6	69.1	Clear	None

Constituent Sampled	Container	Number	Preservative
VOCs	40 mL Glass	9	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 2035

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-158			**Date**	2/14/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	28.0 degrees F and Cloudy. The wind is blowing undefined at 0.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	13.27	**Total Depth (ft-bmp)**	21	**Water Column (ft)**	7.73	**Gallons in Well**	1.26
Purge Start	09:30	**Pump Intake (ft-bmp)**	18.5	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	10:15	**Volumes Purged**	0.94	**Sample ID**	MW-22-158_021424	**Sampled by**	Billy Cobern
Sample Time	10:15	**Gallons Purged**	1.188774	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
09:30	0	0	100	13.27	0.00	0	0	0	0	0	0	Clear	None
09:35	5	5	100	13.37	0.13	7.1	3.541	23.55	2.32	9.7	-32.9	Clear	None
09:40	5	10	100	13.37	0.26	7.1	3.514	32.04	1.76	9.5	-45.9	Clear	None
09:45	5	15	100	13.39	0.40	7.1	3.497	9.13	0.96	9.4	-68.8	Clear	None
09:50	5	20	100	13.41	0.53	7.09	3.513	10.09	0.56	9	-82	Clear	None
09:55	5	25	100	13.42	0.66	7.09	3.529	9.54	0.49	8.5	-89.6	Clear	None
10:00	5	30	100	13.42	0.79	7.08	3.533	9.05	0.27	8.6	-95.5	Clear	None
10:05	5	35	100	13.42	0.92	7.08	3.558	9.04	0.25	8.7	-99.7	Clear	None
10:10	5	40	100	13.42	1.06	7.08	3.559	8.97	0.24	8.7	-100	Clear	None
10:15	5	45	100	13.42	1.19	7.08	3.577	8.86	0.23	8.6	-100.9	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Off site
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-160			**Date**	2/14/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	32.0 degrees F and Cloudy. The wind is blowing undefined at 0.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	13.98	**Total Depth (ft-bmp)**	19	**Water Column (ft)**	5.02	**Gallons in Well**	0.82
Purge Start	12:00	**Pump Intake (ft-bmp)**	16.5	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	12:45	**Volumes Purged**	1.45	**Sample ID**	MW-22-160_021424	**Sampled by**	Billy Cobern
Sample Time	12:45	**Gallons Purged**	1.188774	**Replicate/ Code No.**	MW-22-160_021424	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
12:00	0	0	100	13.98	0.00	0	0	0	0	0	0	Clear	None
12:05	5	5	100	14.09	0.13	7.01	1.186	23.18	2.16	8.8	-65.5	Clear	None
12:10	5	10	100	14.09	0.26	6.95	1.181	21.59	1.15	9	-83	Clear	None
12:15	5	15	100	14.09	0.40	6.92	1.186	22.08	0.41	9.7	-94.5	Clear	None
12:20	5	20	100	14.09	0.53	6.92	1.191	17.67	0.17	9.4	-101	Clear	None
12:25	5	25	100	14.09	0.66	6.91	1.187	11.88	0.04	9.8	-106.2	Clear	None
12:30	5	30	100	14.09	0.79	6.91	1.185	9.08	0.04	10.3	-108.6	Clear	None
12:35	5	35	100	14.09	0.92	6.91	1.184	7.75	0.04	10.3	-110.5	Clear	None
12:40	5	40	100	14.09	1.06	6.91	1.188	7.79	0.04	10.5	-112.5	Clear	None
12:45	5	45	100	14.09	1.19	6.91	1.186	7.21	0.04	10.5	-112.6	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	6	None

Comments: MS/MSD collected here

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Off site
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	PW-14-02			**Date**	2/13/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	30.0 degrees F and Cloudy. The wind is blowing W/NW at 8.1 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	6	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	66.74	**Total Depth (ft-bmp)**	85.2	**Water Column (ft)**	18.46	**Gallons in Well**	27.00
Purge Start	10:05	**Pump Intake (ft-bmp)**	83	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	10:55	**Volumes Purged**	0.05	**Sample ID**	PW-14-02_021324	**Sampled by**	Billy Cobern
Sample Time	10:55	**Gallons Purged**	1.32086	**Replicate/ Code No.**	DUP-01_021324	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
10:05	0	0	100	66.74	0.00	0	0	0	0	0	0	Clear	None
10:10	5	5	100	67.05	0.13	7.09	2.466	198.63	3.64	10.9	-144	Clear	None
10:15	5	10	100	67.05	0.26	7.08	2.406	167.96	2.63	10.9	-145.2	Clear	None
10:20	5	15	100	67.05	0.40	7.07	2.457	156.74	1.67	10.9	-145.7	Clear	None
10:25	5	20	100	67.05	0.53	7.06	2.455	151.53	1.56	10.8	-145.74	Clear	None
10:30	5	25	100	67.05	0.66	7.06	2.454	152.85	1.47	10.8	-146	Clear	None
10:35	5	30	100	67.05	0.79	7.06	2.472	141.55	1.11	9	-146.24	Clear	None
10:40	5	35	100	67.05	0.92	7.04	2.431	150.32	0.99	8.6	-143.4	Clear	None
10:45	5	40	100	67.05	1.06	7.03	2.434	149.99	0.91	8.5	-141.2	Clear	None
10:50	5	45	100	67.05	1.19	7.03	2.435	146.89	0.88	8.5	-140.4	Clear	None
10:55	5	50	100	67.05	1.32	7.03	2.443	147.69	0.87	8.4	-140.6	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	PW-14-03R			**Date**	2/13/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	35.1 degrees F and Cloudy. The wind is blowing W/NW at 9.2 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	6	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	73.49	**Total Depth (ft-bmp)**	95.5	**Water Column (ft)**	22.01	**Gallons in Well**	32.19
Purge Start	15:10	**Pump Intake (ft-bmp)**	93	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	16:05	**Volumes Purged**	0.05	**Sample ID**	PW-14-03R_021324	**Sampled by**	Billy Cobern
Sample Time	16:05	**Gallons Purged**	1.452946	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
15:10	0	0	100	73.49	0.00	0	0	0	0	0	0	Clear	None
15:15	5	5	100	73.80	0.13	5.63	1.851	873.57	9.43	7.5	24	Clear	None
15:20	5	10	100	73.80	0.26	5.52	3.806	978.47	8.94	7.3	42.5	Clear	None
15:25	5	15	100	73.80	0.40	5.31	3.901	808.78	7.15	7.1	43.4	Clear	None
15:30	5	20	100	73.80	0.53	5.28	3.929	368.26	6.94	6.7	30.1	Clear	None
15:35	5	25	100	73.80	0.66	5.2	3.916	274.99	3.74	6.8	33.3	Clear	None
15:40	5	30	100	73.80	0.79	5.2	3.925	207.51	3.32	6.7	35.4	Clear	None
15:45	5	35	100	73.80	0.92	5.19	3.91	182.48	3.14	6.9	39.1	Clear	None
15:50	5	40	100	73.80	1.06	5.19	3.924	154.33	3.03	7	44	Clear	None
15:55	5	45	100	73.80	1.19	5.19	3.91	139.74	2.95	7.1	47.8	Clear	None
16:00	5	50	100	73.80	1.32	5.19	3.911	134.75	2.93	7.2	48.7	Clear	None
16:05	5	55	100	73.80	1.45	5.19	3.908	135.65	2.92	7.2	49.3	Clear	None

Constituent Sampled	Container	Number	Preservative
SERDP	1L Plastic	2	None
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments: Collected SERDP sample after sampling for 1,4 dioxane. Lowered pump to bottom of well before collecting SERDP sample.

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	TW-14-02			**Date**	2/12/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	37.9 degrees F and Mostly Clear. The wind is blowing S/SW at 9.2 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	62.71	**Total Depth (ft-bmp)**	70.5	**Water Column (ft)**	7.79	**Gallons in Well**	1.27
Purge Start	12:15	**Pump Intake (ft-bmp)**	68	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	13:05	**Volumes Purged**	1.04	**Sample ID**	TW-14-02_021224	**Sampled by**	Billy Cobern
Sample Time	13:05	**Gallons Purged**	1.32086	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
12:15	0	0	100	62.71	0.00	0	0	0	0	0	0	Clear	None
12:20	5	5	100	62.75	0.13	7.8	4.85	194.75	10.5	10.7	-42.2	Clear	None
12:25	5	10	100	62.75	0.26	7.82	4.866	97	10.64	9	-45.3	Clear	None
12:30	5	15	100	62.75	0.40	7.81	4.858	76.34	10.6	8.8	-44.1	Clear	None
12:35	5	20	100	62.75	0.53	7.78	4.839	72.85	10.53	9.2	-41.8	Clear	None
12:40	5	25	100	62.75	0.66	7.76	4.865	55.21	10.49	9.2	-40.3	Clear	None
12:45	5	30	100	62.75	0.79	7.74	4.875	45.47	10.5	9	-40.1	Clear	None
12:50	5	35	100	62.75	0.92	7.72	4.86	36.31	10.49	9.3	-38.9	Clear	None
12:55	5	40	100	62.75	1.06	7.69	4.881	31.05	10.45	8.9	-38.9	Clear	None
13:00	5	45	100	62.75	1.19	7.69	4.892	31.06	10.44	8.7	-39.2	Clear	None
13:05	5	50	100	62.75	1.32	7.69	4.887	31.92	10.44	8.7	-39.3	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	TW-15-11			**Date**	2/13/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	32 degrees F / Overcast			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	73.39	**Total Depth (ft-bmp)**	87.97	**Water Column (ft)**	14.58	**Gallons in Well**	2.37
Purge Start	13:15	**Pump Intake (ft-bmp)**	85.47	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	14:20	**Volumes Purged**	1.23	**Sample ID**	TW-15-11_021324	**Sampled by**	Donald Richmond
Sample Time	14:15	**Gallons Purged**	2.9058926	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
13:25	0	0	200	73.39	0.53	7.06	2.387	25	10.09	11	185.8	Clear	None
13:30	5	5	200	73.39	0.79	7.04	2.423	67.69	10.01	11.2	227.8	Clear	None
13:35	5	10	200	73.39	1.06	7.03	2.427	86	9.72	11.1	249	Clear	None
13:40	5	15	200	73.39	1.32	7.01	2.449	84	9.68	11	261.9	Clear	None
13:45	5	20	200	73.39	1.59	7	2.479	77	9.71	11.1	269	Clear	None
13:50	5	25	200	73.39	1.85	7	2.483	64	9.72	10.8	273.3	Clear	None
13:55	5	30	200	73.39	2.11	6.99	2.525	58	9.75	11	277	Clear	None
14:00	5	35	200	73.39	2.38	6.99	2.531	53	9.76	10.8	279.7	Clear	None
14:05	5	40	200	73.39	2.64	6.99	2.542	46	9.82	10.9	280.6	Clear	None
14:10	5	45	200	73.39	2.91	6.98	2.577	38	9.78	11.2	281	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	TW-15-12			**Date**	2/13/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	33.1 degrees F and Light Snow. The wind is blowing N/NW at 9.2 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	4	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	62.98	**Total Depth (ft-bmp)**	76.8	**Water Column (ft)**	13.82	**Gallons in Well**	8.98
Purge Start	11:40	**Pump Intake (ft-bmp)**	74	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	12:40	**Volumes Purged**	0.18	**Sample ID**	TW-15-12_021324	**Sampled by**	Billy Cobern
Sample Time	12:40	**Gallons Purged**	1.585032	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
11:40	0	0	100	62.98	0.00	0	0	0	0	0	0	Clear	None
11:45	5	5	100	63.39	0.13	7.74	2.903	174.97	10.94	11.7	-56.7	Clear	None
11:50	5	10	100	63.60	0.26	7.76	2.952	131.27	10.95	9.8	-56.8	Clear	None
11:55	5	15	100	63.81	0.40	7.78	2.954	128.47	11.19	7	-67.3	Clear	None
12:00	5	20	100	64.02	0.53	7.88	1.405	124.75	11	6.2	-73.3	Clear	None
12:05	5	25	100	64.22	0.66	7.75	2.902	148.88	11.05	7.5	-68.3	Clear	None
12:10	5	30	100	64.22	0.79	7.73	2.936	117.97	11.04	6.8	-65.1	Clear	None
12:15	5	35	100	64.41	0.92	7.73	2.934	120.75	11.06	6.3	-65.7	Clear	None
12:20	5	40	100	64.60	1.06	7.73	2.929	129.1	11.05	11.05	-64.6	Clear	None
12:25	5	45	100	64.79	1.19	7.73	2.926	114.37	11.05	6.1	-65	Clear	None
12:30	5	50	100	64.97	1.32	7.73	2.922	116.26	11	6.4	-63.8	Clear	None
12:35	5	55	100	65.15	1.45	7.77	2.924	111.98	11.02	6.4	-62.7	Clear	None
12:40	5	60	100	65.29	1.59	7.73	2.926	114.25	11.02	6.4	-60.2	Clear	None

Constituent Sampled	Container	Number	Preservative
SERDP	1L Plastic	2	None
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments: SERDP collected after sampling 1,4 dioxane. Lowered pump to the bottom of the well for the SERDP sample. Didn't meet drawdown requirements.

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: no
Well Locked at Departure: no
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-14-56			**Date**	4/9/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	70.0 degrees F and Clear. The wind is blowing W/SW at 16.1 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	65.99	**Total Depth (ft-bmp)**	75.7	**Water Column (ft)**	9.71	**Gallons in Well**	1.58
Purge Start	13:10	**Pump Intake (ft-bmp)**	73.2	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	14:05	**Volumes Purged**	1.84	**Sample ID**	MW-14-56_040924	**Sampled by**	Austin Westhuis
Sample Time	13:50	**Gallons Purged**	2.91	**Replicate/ Code No.**	MS/MSD	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
13:15	0	0	200	67.22	0.26	6.84	2.94	14.59	2.12	14.3	-37.3	Clear	None
13:20	5	5	200	67.22	0.53	6.8	3.124	10.7	1.42	14.2	-41.8	Clear	None
13:25	5	10	200	67.22	0.79	6.78	3.219	8.31	0.85	14.3	-44.6	Clear	None
13:30	5	15	200	67.22	1.06	6.77	3.263	8.27	0.64	14.3	-45.8	Clear	None
13:35	5	20	200	67.22	1.32	6.77	3.276	8.13	0.52	14.3	-46.4	Clear	None
13:40	5	25	200	67.22	1.59	6.77	3.271	7.67	0.47	14.1	-46.5	Clear	None
13:45	5	30	200	67.22	1.85	6.77	3.295	7.42	0.46	14.1	-46.9	Clear	None
13:50	5	35	200	67.22	2.11	6.77	3.291	7.09	0.44	14.1	-46.7	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8260 SIMS	40 mL Glass	9	HCL
PFAS	250mL HDPE Plastic	6	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: See figure.
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-14-58R			**Date**	4/8/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	62.1 degrees F and Clear. The wind is blowing S/SE at 11.4 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	12.75	**Total Depth (ft-bmp)**	29.61	**Water Column (ft)**	16.86	**Gallons in Well**	2.74
Purge Start	13:00	**Pump Intake (ft-bmp)**	27.11	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	13:40	**Volumes Purged**	0.77	**Sample ID**	MW-14-58R_040824	**Sampled by**	Austin Westhuis
Sample Time	13:35	**Gallons Purged**	2.11	**Replicate/ Code No.**	DUP-01_040824	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
13:05	0	0	200	12.75	0.26	6.98	2.504	81.98	0.35	14.7	-41.4	Clear	None
13:10	5	5	200	12.75	0.53	6.98	2.512	53.62	0.4	14.8	-47.2	Clear	None
13:15	5	10	200	12.75	0.79	6.98	2.523	17.69	0.33	14.8	-58.8	Clear	None
13:20	5	15	200	12.75	1.06	6.98	2.547	15.29	0.36	14.9	-61.2	Clear	None
13:25	5	20	200	12.75	1.32	6.98	2.545	11.61	0.26	15	-62.8	Clear	None
13:30	5	25	200	12.75	1.59	6.98	2.543	11.21	0.24	15	-64.3	Clear	None
13:35	5	30	200	12.75	1.85	6.98	2.552	10.94	0.24	15	-65.4	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8260 SIMS and VOC 8260 SIMS	40 mL Glass	6	HCL
PFAS	250mL HDPE Plastic	4	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: See figure.
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-15-73			**Date**	4/10/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	It is Clear. The wind is blowing S/SW at 5.8 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	73.56	**Total Depth (ft-bmp)**	80.98	**Water Column (ft)**	7.42	**Gallons in Well**	1.21
Purge Start	10:50	**Pump Intake (ft-bmp)**	78.48	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	11:40	**Volumes Purged**	2.18	**Sample ID**	MW-15-73_041024	**Sampled by**	Austin Westhuis
Sample Time	11:35	**Gallons Purged**	2.64	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
10:55	0	0	200	73.56	0.26	6.56	3.504	148.58	0.9	13.5	26.9	Clear	None
11:00	5	5	200	73.97	0.53	6.56	3.413	84.38	0.65	13.3	26.3	Clear	None
11:05	5	10	200	73.97	0.79	6.56	3.384	59.92	0.59	13.1	25.6	Clear	None
11:10	5	15	200	73.97	1.06	6.56	3.374	42.18	0.53	13.1	25	Clear	None
11:15	5	20	200	73.97	1.32	6.55	3.39	28.12	0.45	13.2	24.3	Clear	None
11:20	5	25	200	73.97	1.59	6.55	3.398	26.16	0.44	13.2	24.3	Clear	None
11:25	5	30	200	73.97	1.85	6.55	3.429	23.39	0.42	13.3	24.2	Clear	None
11:30	5	35	200	73.97	2.11	6.55	3.446	23.03	0.42	13.3	23.9	Clear	None
11:35	5	40	200	73.97	2.38	6.55	3.462	22.16	0.4	13.3	23.6	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: See figure.
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-16-80			**Date**	4/10/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	61.0 degrees F and Clear. The wind is blowing W at 4.7 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	65.26	**Total Depth (ft-bmp)**	73.3	**Water Column (ft)**	8.04	**Gallons in Well**	1.31
Purge Start	14:15	**Pump Intake (ft-bmp)**	71.3	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	14:50	**Volumes Purged**	1.41	**Sample ID**	MW-16-80_041024	**Sampled by**	Austin Westhuis
Sample Time	14:45	**Gallons Purged**	1.85	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
14:20	0	0	200	66.28	0.26	6.55	2.99	82.11	1.42	12.7	-28.7	Clear	None
14:25	5	5	200	66.41	0.53	6.57	2.955	59.76	0.65	12.5	-31.8	Clear	None
14:30	5	10	200	66.50	0.79	6.57	2.943	46.22	0.4	12.3	-33.5	Clear	None
14:35	5	15	200	66.55	1.06	6.57	2.934	43.14	0.3	12.3	-35.6	Clear	None
14:40	5	20	200	66.55	1.32	6.58	2.922	41.88	0.29	12.3	-36.4	Clear	None
14:45	5	25	200	66.55	1.59	6.58	2.918	41.22	0.29	12.2	-36.8	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot

1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: See figure.

Condition of Well: Good condition

Well Completion: Flush mount

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-16-83			**Date**	4/10/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	It is Clear. The wind is blowing S/SW at 3.4 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	73.74	**Total Depth (ft-bmp)**	79.8	**Water Column (ft)**	6.06	**Gallons in Well**	0.98
Purge Start	09:40	**Pump Intake (ft-bmp)**	77.08	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	10:15	**Volumes Purged**	1.89	**Sample ID**	MW-16-83_041024	**Sampled by**	Austin Westhuis
Sample Time	10:10	**Gallons Purged**	1.85	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
09:45	0	0	200	75.80	0.26	6.57	3.315	12.71	0.8	12.7	-57.6	Clear	None
09:50	5	5	200	76.33	0.53	6.55	3.318	11.32	0.53	12.7	-55.5	Clear	None
09:55	5	10	200	76.33	0.79	6.55	3.32	9.29	0.48	12.8	-55.4	Clear	None
10:00	5	15	200	76.33	1.06	6.55	3.337	5.61	0.39	12.9	-56.3	Clear	None
10:05	5	20	200	76.33	1.32	6.56	3.348	5.34	0.36	13	-56.9	Clear	None
10:10	5	25	200	76.33	1.59	6.56	3.361	4.85	0.36	13	-57.5	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot

1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: See figure.

Condition of Well: Good condition

Well Completion: Stick-up

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-17-87			**Date**	4/9/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	64.9 degrees F and Partly Cloudy and Windy. The wind is blowing SW at 19.7 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	76.53	**Total Depth (ft-bmp)**	113.86	**Water Column (ft)**	37.33	**Gallons in Well**	6.07
Purge Start	11:55	**Pump Intake (ft-bmp)**	108.86	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	12:35	**Volumes Purged**	0.35	**Sample ID**	MW-17-87_040924	**Sampled by**	Austin Westhuis
Sample Time	12:30	**Gallons Purged**	2.11	**Replicate/ Code No.**	DUP-02_040924	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
12:00	0	0	200	77.71	0.26	9.07	2.009	62.99	0.23	14.5	-276.1	Clear	None
12:05	5	5	200	78.20	0.53	9.07	2.026	57.38	0.17	14.7	-259.2	Clear	None
12:10	5	10	200	78.33	0.79	9.12	2.012	51.38	0.17	14.8	-227.3	Clear	None
12:15	5	15	200	78.37	1.06	9.2	1.999	45.59	0.17	14.8	-197	Clear	None
12:20	5	20	200	78.41	1.32	9.23	1.991	44.78	0.17	14.8	-181.3	Clear	None
12:25	5	25	200	78.43	1.59	9.25	1.985	43.53	0.17	14.8	-177.8	Clear	None
12:30	5	30	200	78.45	1.85	9.27	1.981	41.94	0.17	14.8	-176.8	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 522	250 mL Amber	4	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: See figure.
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-19-118S			**Date**	4/9/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	64.0 degrees F and Mostly Clear.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	77.41	**Total Depth (ft-bmp)**	162.89	**Water Column (ft)**	85.48	**Gallons in Well**	13.89
Purge Start	10:45	**Pump Intake (ft-bmp)**	157.89	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	11:25	**Volumes Purged**	0.15	**Sample ID**	MW-19-118S_040924	**Sampled by**	Austin Westhuis
Sample Time	11:20	**Gallons Purged**	2.11	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
10:50	0	0	200	77.44	0.26	7.55	2.198	104.24	5.82	15.3	-32	Clear	None
10:55	5	5	200	77.44	0.53	7.56	2.196	91.66	5.89	15.3	10.9	Clear	None
11:00	5	10	200	77.44	0.79	7.55	2.245	89.73	5.96	15.4	52.1	Clear	None
11:05	5	15	200	77.44	1.06	7.54	2.281	86.33	5.91	15.4	59.2	Clear	None
11:10	5	20	200	77.44	1.32	7.54	2.294	82.84	5.92	15.4	69.5	Clear	None
11:15	5	25	200	77.44	1.59	7.54	2.306	80.11	5.91	15.4	77.1	Clear	None
11:20	5	30	200	77.44	1.85	7.54	2.282	77.69	5.91	15.4	79.2	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 522	250 mL Amber	2	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: See figure.
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-20-126			**Date**	4/10/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	61.0 degrees F and Clear. The wind is blowing W at 4.7 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	68.10	**Total Depth (ft-bmp)**	75.47	**Water Column (ft)**	7.37	**Gallons in Well**	1.20
Purge Start	13:25	**Pump Intake (ft-bmp)**	72.97	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	13:55	**Volumes Purged**	1.32	**Sample ID**	MW-20-126_041024	**Sampled by**	Austin Westhuis
Sample Time	13:50	**Gallons Purged**	1.58	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
13:30	0	0	200	68.10	0.26	7.2	2.633	59.29	9.13	13.8	102.1	Clear	None
13:35	5	5	200	68.10	0.53	7.18	2.694	43.32	8.64	13.8	107.3	Clear	None
13:40	5	10	200	68.10	0.79	7.18	2.757	32.02	7.69	13.8	110.6	Clear	None
13:45	5	15	200	68.10	1.06	7.19	2.788	30.61	7.72	13.9	112.4	Clear	None
13:50	5	20	200	68.10	1.32	7.21	2.801	29.36	7.78	13.9	113.8	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: See figure.
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-153			**Date**	4/8/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	66.0 degrees F and Clear. The wind is blowing S/SE at 10.3 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	10.23	**Total Depth (ft-bmp)**	31.18	**Water Column (ft)**	20.95	**Gallons in Well**	3.40
Purge Start	14:00	**Pump Intake (ft-bmp)**	28.68	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	14:40	**Volumes Purged**	0.62	**Sample ID**	MW-22-153_040824	**Sampled by**	Austin Westhuis
Sample Time	14:35	**Gallons Purged**	2.11	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
14:05	0	0	200	10.23	0.26	7.12	1.872	20.05	0.75	15	-70.8	Clear	None
14:10	5	5	200	10.23	0.53	7.12	1.852	16.99	0.32	14.8	-72.9	Clear	None
14:15	5	10	200	10.23	0.79	7.13	1.837	15.12	0.22	14.6	-74.1	Clear	None
14:20	5	15	200	10.23	1.06	7.13	1.825	14.77	0.18	14.6	-75.1	Clear	None
14:25	5	20	200	10.23	1.32	7.13	1.803	14.02	0.13	14.3	-76.2	Clear	None
14:30	5	25	200	10.23	1.59	7.13	1.796	13.68	0.12	14.4	-76.7	Clear	None
14:35	5	30	200	10.23	1.85	7.13	1.791	13.42	0.12	14.2	-77.2	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM,VOCs	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: See figure.
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-155			**Date**	4/8/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	71.1 degrees F and Mostly Clear.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	11.52	**Total Depth (ft-bmp)**	31.51	**Water Column (ft)**	19.99	**Gallons in Well**	3.25
Purge Start	15:00	**Pump Intake (ft-bmp)**	30.01	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	15:35	**Volumes Purged**	0.57	**Sample ID**	MW-22-155_040824	**Sampled by**	Austin Westhuis
Sample Time	15:30	**Gallons Purged**	1.85	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
15:05	0	0	200	11.57	0.26	6.98	1.894	261.82	0.44	14.9	-15.7	Clear	None
15:10	5	5	200	11.57	0.53	6.98	1.959	190.47	0.29	15	-29.6	Clear	None
15:15	5	10	200	11.57	0.79	6.98	1.977	162.4	0.28	15.1	-34.8	Clear	None
15:20	5	15	200	11.57	1.06	6.98	2.017	147.89	0.24	15.2	-42.6	Clear	None
15:25	5	20	200	11.57	1.32	6.98	2.035	147.82	0.22	15.2	-44.8	Clear	None
15:30	5	25	200	11.57	1.59	6.99	2.033	144.21	0.22	15.2	-47.3	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM,VOCs	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot

1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: See figure.

Condition of Well: Good condition

Well Completion: Stick-up

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-156			**Date**	4/8/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	70.0 degrees F and Cloudy. The wind is blowing SW at 17.2 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	12.68	**Total Depth (ft-bmp)**	31.04	**Water Column (ft)**	18.36	**Gallons in Well**	2.98
Purge Start	16:00	**Pump Intake (ft-bmp)**	27.51	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	16:40	**Volumes Purged**	0.71	**Sample ID**	MW-22-156_040824	**Sampled by**	Austin Westhuis
Sample Time	16:35	**Gallons Purged**	2.11	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
16:05	0	0	200	12.74	0.26	7.22	1.598	44.04	0.51	14.1	-74.8	Clear	None
16:10	5	5	200	12.74	0.53	7.23	1.547	41.18	0.25	14.2	-80.7	Clear	None
16:15	5	10	200	12.74	0.79	7.24	1.497	37.47	0.63	14.3	-80.9	Clear	None
16:20	5	15	200	12.74	1.06	7.25	1.477	35.69	0.58	14.2	-80.3	Clear	None
16:25	5	20	200	12.74	1.32	7.25	1.474	35.16	0.58	14.4	-80.4	Clear	None
16:30	5	25	200	12.74	1.59	7.25	1.473	34.33	0.54	14.4	-81.5	Clear	None
16:35	5	30	200	12.74	1.85	7.25	1.47	31.93	0.53	14.4	-82.3	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM,VOCs	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: See figure.
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-157			**Date**	4/8/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	71.1 degrees F and Clear. The wind is blowing W/SW at 15.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	2.20	**Total Depth (ft-bmp)**	27.61	**Water Column (ft)**	25.41	**Gallons in Well**	4.13
Purge Start	19:30	**Pump Intake (ft-bmp)**	25.11	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	20:05	**Volumes Purged**	0.58	**Sample ID**	MW-22-157_040824	**Sampled by**	Austin Westhuis
Sample Time	20:00	**Gallons Purged**	2.38	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
19:35	0	0	200	2.20	0.26	7.09	1.159	22.51	0.66	13.5	-38.7	Clear	None
19:40	5	5	200	2.20	0.53	7.09	1.157	15.01	0.27	13.6	-45.5	Clear	None
19:45	5	10	200	2.20	0.79	7.1	1.143	10.99	0.13	13.5	-50.4	Clear	None
19:50	5	15	200	2.20	1.06	7.1	1.143	10.18	0.12	13.7	-53.2	Clear	None
19:55	5	20	200	2.20	1.32	7.09	1.142	9.56	0.12	13.7	-54.8	Clear	None
20:00	5	25	200	2.20	1.59	7.09	1.146	9.22	0.12	13.6	-56	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM,VOCs	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot

1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: See figure.

Condition of Well: Good condition

Well Completion: Flush mount

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-23-161			**Date**	4/8/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	70.0 degrees F and Mostly Cloudy. The wind is blowing SW at 12.8 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	10.31	**Total Depth (ft-bmp)**	27.58	**Water Column (ft)**	17.27	**Gallons in Well**	2.81
Purge Start	17:00	**Pump Intake (ft-bmp)**	22.08	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	17:40	**Volumes Purged**	0.75	**Sample ID**	MW-23-161_040824	**Sampled by**	Austin Westhuis
Sample Time	17:35	**Gallons Purged**	2.11	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
17:05	0	0	200	10.31	0.26	7.04	1.784	113.63	0.54	13	-41.1	Clear	None
17:10	5	5	200	10.31	0.53	7.1	1.716	108.22	0.32	13.1	-49.3	Clear	None
17:15	5	10	200	10.31	0.79	7.15	1.488	102.23	0.19	13.1	-51.2	Clear	None
17:20	5	15	200	10.31	1.06	7.16	1.361	99.96	0.13	12.9	-59.2	Clear	None
17:25	5	20	200	10.31	1.32	7.17	1.294	67.37	0.08	12.7	-63.5	Clear	None
17:30	5	25	200	10.31	1.59	7.17	1.292	65.22	0.08	12.6	-65.2	Clear	None
17:35	5	30	200	10.31	1.85	7.16	1.293	64.38	0.08	12.8	-67.5	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: See figure.
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-23-162			**Date**	4/8/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	73.0 degrees F and Partly Cloudy. The wind is blowing SW at 16.1 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	13.77	**Total Depth (ft-bmp)**	36.63	**Water Column (ft)**	22.86	**Gallons in Well**	3.71
Purge Start	17:50	**Pump Intake (ft-bmp)**	34.13	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	18:25	**Volumes Purged**	0.50	**Sample ID**	MW-23-162_040824	**Sampled by**	Austin Westhuis
Sample Time	18:20	**Gallons Purged**	1.85	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
17:55	0	0	200	14.50	0.26	6.83	2.477	90.15	2.24	13.5	-52.2	Clear	None
18:00	5	5	200	15.02	0.53	6.86	2.47	85.7	0.36	13.5	-49.5	Clear	None
18:05	5	10	200	15.24	0.79	6.88	2.444	41.87	0.29	13.3	-47.9	Clear	None
18:10	5	15	200	15.41	1.06	6.89	2.444	32.34	0.32	13.3	-48.5	Clear	None
18:15	5	20	200	15.41	1.32	6.91	2.443	31.69	0.31	13.4	-50.5	Clear	None
18:20	5	25	200	15.41	1.59	6.92	2.433	30.41	0.29	13.4	-52.2	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot

1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: See figure.

Condition of Well: Good condition

Well Completion: Stick-up

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-23-163			**Date**	4/8/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	72.0 degrees F and Clear. The wind is blowing SW at 16.1 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	13.25	**Total Depth (ft-bmp)**	27.22	**Water Column (ft)**	13.97	**Gallons in Well**	2.27
Purge Start	18:35	**Pump Intake (ft-bmp)**	25.72	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	19:15	**Volumes Purged**	0.93	**Sample ID**	MW-23-163_040824	**Sampled by**	Austin Westhuis
Sample Time	19:10	**Gallons Purged**	2.11	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
18:40	0	0	200	13.80	0.26	7.17	1.072	283.29	0.92	12.1	-45	Clear	None
18:45	5	5	200	13.80	0.53	7.15	1.086	115.02	0.21	12	-62.5	Clear	None
18:50	5	10	200	13.80	0.79	7.15	1.096	94.12	0.17	12.1	-64.8	Clear	None
18:55	5	15	200	13.80	1.06	7.15	1.098	81.26	0.15	12.1	-68.9	Clear	None
19:00	5	20	200	13.80	1.32	7.14	1.1	75.09	0.14	12.1	-72.3	Clear	None
19:05	5	25	200	13.80	1.59	7.15	1.098	73.48	0.14	12.1	-72.6	Clear	None
19:10	5	30	200	13.80	1.85	7.15	1.097	69.89	0.13	12.1	-73	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: See figure.
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	CH-14-RO			**Date**	5/22/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	75.0 degrees F and Mostly Cloudy.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	6.95	**Total Depth (ft-bmp)**	14.85	**Water Column (ft)**	7.90	**Gallons in Well**	1.28
Purge Start	10:05	**Pump Intake (ft-bmp)**	12	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	10:40	**Volumes Purged**	0.72	**Sample ID**	CH-14-RO_052224	**Sampled by**	Billy Cobern
Sample Time	10:40	**Gallons Purged**	0.9246022	**Replicate/ Code No.**	CH-14-RO_052224	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
10:10	0	0	100	7.15	0.13	7.24	1.059	6.55	2.74	16.8	65.1	Green	None
10:15	5	5	100	7.19	0.26	7.23	1.032	10.32	0.97	16.5	70.5	Green	None
10:20	5	10	100	7.20	0.40	7.23	1.026	13.26	0.41	16.2	71.6	Green	None
10:25	5	15	100	7.20	0.53	7.22	1.023	10.68	0.18	16.3	73.5	Green	None
10:30	5	20	100	7.20	0.66	7.22	1.023	8.73	0.16	16.2	73.5	Green	None
10:35	5	25	100	7.20	0.79	7.22	1.024	8.23	0.15	16.2	73.6	Green	None
10:40	5	30	100	7.20	0.92	7.22	1.024	8.11	0.15	16.1	73.9	Green	None

Constituent Sampled	Container	Number	Preservative
Hexavalent Chromium SW-846 7196	250 mL Plastic	3	None
PFAS	250 mL Plastic	6	None
Total Metals	125 mL Plastic	3	HNO3

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-01(2)			**Date**	5/17/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	66.0 degrees F and Clear. The wind is blowing S at 6.9 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	7.25	**Total Depth (ft-bmp)**	15.97	**Water Column (ft)**	8.72	**Gallons in Well**	1.42
Purge Start	10:35	**Pump Intake (ft-bmp)**	13.5	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	11:45	**Volumes Purged**	1.51	**Sample ID**	MW-01(2)_051724	**Sampled by**	Ellen Redner
Sample Time	11:40	**Gallons Purged**	2.15	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate gal/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
10:40	0	0	0.04	8.00	0.2	6.62	3.013	10.5	1.3	14.7	189.2	Clear	None
10:45	5	5	0.03	8.55	0.35	6.7	3.187	14.9	1.01	14.9	184.4	Clear	None
10:50	5	10	0.03	8.65	0.5	6.71	3.291	18.5	0.85	14.9	182.5	Clear	None
10:55	5	15	0.03	8.75	0.65	6.74	3.432	28.5	0.62	14.7	178.6	Clear	None
11:00	5	20	0.03	8.90	0.8	6.76	3.477	5.46	0.57	14.5	174.1	Clear	None
11:05	5	25	0.03	9.10	0.95	6.76	3.493	5.16	0.56	14.5	169.3	Clear	None
11:10	5	30	0.03	9.10	1.1	6.75	3.685	3.82	0.28	14.4	162.8	Clear	None
11:15	5	35	0.03	9.00	1.25	6.77	3.731	4.42	0.03	14.4	137	Clear	None
11:20	5	40	0.03	9.00	1.4	6.77	3.733	4.78	0.01	14.4	124.5	Clear	None
11:25	5	45	0.03	9.00	1.55	6.77	3.737	4.81	0.01	14.3	118.4	Clear	None
11:30	5	50	0.03	9.00	1.7	6.77	3.726	5.16	0	14.3	108.4	Clear	None
11:35	5	55	0.03	9.00	1.85	6.78	3.725	5.23	0	14.1	79.2	Clear	None
11:40	5	60	0.03	9.00	2	6.78	3.719	5.62	0	14.3	77.8	Clear	None

Constituent Sampled	Container	Number	Preservative
VOCs	40 mL Glass	3	HCL

Comments: ORP did not stabilize.

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location:

Condition of Well: Good condition

Well Completion: Flush mount

Well Locked at Arrival: no

Well Locked at Departure: no

Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-02-02(3)			**Date**	5/21/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	61.86	**Total Depth (ft-bmp)**	83.7	**Water Column (ft)**	21.84	**Gallons in Well**	3.55
Purge Start	11:35	**Pump Intake (ft-bmp)**	81.2	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	12:35	**Volumes Purged**	0.82	**Sample ID**	MW-02-02(3)_052124	**Sampled by**	Donald Richmond
Sample Time	12:35	**Gallons Purged**	2.91	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
11:45	0	0	200	61.86	0.53	6.9	1.382	25	1.57	17.9	159.1	Clear	None
11:50	5	5	200	61.86	0.79	6.86	1.376	25	1.33	17.9	160.5	Clear	None
11:55	5	10	200	61.86	1.06	6.82	1.374	55	1.05	17.8	157.1	Clear	None
12:00	5	15	200	61.86	1.32	6.81	1.381	70	0.9	18	152.7	Clear	None
12:05	5	20	200	61.86	1.59	6.8	1.425	83	0.83	18.2	147	Clear	None
12:10	5	25	200	61.86	1.85	6.77	1.635	114	0.65	18.6	2.4	Clear	None
12:15	5	30	200	61.86	2.11	6.75	1.769	140	0.53	18.8	-28.3	Clear	None
12:20	5	35	200	61.86	2.38	6.74	1.798	189	0.51	18.5	-36.2	Clear	None
12:25	5	40	200	61.86	2.64	6.74	1.818	219	0.51	18.5	-39	Clear	None
12:30	5	45	200	61.86	2.91	6.74	1.832	219	0.5	18.5	-40.9	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-02-02(6)			**Date**	5/23/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	28.64	**Total Depth (ft-bmp)**	43.38	**Water Column (ft)**	14.74	**Gallons in Well**	2.40
Purge Start	14:40	**Pump Intake (ft-bmp)**	40.88	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	16:00	**Volumes Purged**	1.21	**Sample ID**	MW-02-02(6)_052324	**Sampled by**	Donald Richmond
Sample Time	15:40	**Gallons Purged**	2.91	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
14:55	0	0	200	28.64	0.79	6.74	6.536	23.19	1.13	23.8	-27.4	Clear	None
15:00	5	5	200	28.64	1.06	6.75	6.98	18.89	0.9	24.4	-43.4	Clear	None
15:05	5	10	200	28.64	1.32	6.76	7.254	20.15	0.64	23.9	-58.6	Clear	None
15:10	5	15	200	28.64	1.59	6.78	7.5	31	0.45	23.8	-68.5	Clear	None
15:15	5	20	200	28.64	1.85	6.78	7.574	40	0.38	23.9	-71	Clear	None
15:20	5	25	200	28.64	2.11	6.78	7.603	38	0.33	23.6	-72.7	Clear	None
15:25	5	30	200	28.64	2.38	6.78	7.597	50.86	0.29	23.8	-74.4	Clear	None
15:30	5	35	200	28.64	2.64	6.79	7.487	61	0.25	23	-76.2	Clear	None
15:35	5	40	200	28.64	2.91	6.79	7.583	19	0.24	23.6	-77.4	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM,VOCs SW-846 8260B	40 mL Glass	3	HCL
SVOCs SW-846 8270C	1L Amber	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-02-04(3)			**Date**	5/21/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	61.0 degrees F and Cloudy. The wind is blowing W at 4.7 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	60.83	**Total Depth (ft-bmp)**	84.55	**Water Column (ft)**	23.72	**Gallons in Well**	3.85
Purge Start	09:50	**Pump Intake (ft-bmp)**	83.55	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	11:05	**Volumes Purged**	1.01	**Sample ID**	MW-02-04(3)_052124	**Sampled by**	Jarrett Humpula
Sample Time	11:00	**Gallons Purged**	3.9	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
09:54	0	0	150	60.83	0.16	7.16	3.873	1191.14	9.31	16.8	284	Brown	None
09:59	5	5	150	61.64	0.36	7.11	3.7	995.36	7.41	14.7	186.7	Brown	None
10:04	5	10	150	61.64	0.55	7.04	3.701	863.45	7.17	14.9	112.7	Brown	None
10:09	5	15	150	61.64	0.75	6.94	3.714	626.72	5.18	15	-1	Brown	None
10:14	5	20	150	61.64	0.95	6.92	3.694	752.73	4.27	14.8	-18.2	Brown	None
10:19	5	25	150	61.64	1.12	6.91	3.688	710.54	3.84	14.8	-23.5	Brown	None
10:24	5	30	150	61.64	1.35	6.89	3.69	826.05	3.34	14.8	-29.3	Brown	None
10:29	5	35	150	61.64	1.55	6.88	3.687	823.1	2.78	15	-33.5	Brown	None
10:34	5	40	150	61.64	1.74	6.86	3.7	768.8	2.37	14.9	-39.8	Brown	None
10:39	5	45	150	61.64	1.94	6.86	3.73	699.87	2.1	15.1	-42.7	Brown	None
10:44	5	50	150	61.64	2.14	6.86	3.727	776.52	1.85	15.1	-45.2	Brown	None
10:49	5	55	150	61.64	2.34	6.86	3.75	861.27	1.51	15.3	-48.6	Brown	None
10:54	5	60	150	61.64	2.54	6.92	3.762	749.82	1.41	15.4	-50.2	Brown	None
10:59	5	65	150	61.64	2.73	6.86	3.767	695.67	1.24	15.4	-51.8	Brown	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL
Dissolved Metals,Total Metals	250 mL Plastic	2	HNO3
PFAS	250mL HDPE Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot

1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3

Condition of Well: Good condition

Well Completion: Flush mount

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-03-05			**Date**	5/23/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	22.00	**Total Depth (ft-bmp)**	48.04	**Water Column (ft)**	26.04	**Gallons in Well**	4.23
Purge Start	13:45	**Pump Intake (ft-bmp)**	45.54	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	14:25	**Volumes Purged**	0.38	**Sample ID**	MW-03-05_052324	**Sampled by**	Donald Richmond
Sample Time	14:20	**Gallons Purged**	1.59	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
13:50	0	0	200	22.00	0.26	7.92	1.6	47	0.66	19.3	30.7	Clear	None
13:55	5	5	200	22.00	0.53	7.86	1.6	64	0.62	19.3	5.3	Clear	None
14:00	5	10	200	22.00	0.79	7.84	1.593	56	0.66	19.2	-19.5	Clear	None
14:05	5	15	200	22.00	1.06	7.83	1.609	47	0.69	19.7	-32.6	Clear	None
14:10	5	20	200	22.00	1.32	7.82	1.601	45	0.7	19.3	-39.4	Clear	None
14:15	5	25	200	22.00	1.59	7.82	1.591	49	0.73	19.1	-42.5	Clear	None

Constituent Sampled	Container	Number	Preservative
VOCs,1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot

1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6

Condition of Well: Good condition

Well Completion: Stick-up

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-03-06			**Date**	5/23/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	35.79	**Total Depth (ft-bmp)**	40.58	**Water Column (ft)**	4.79	**Gallons in Well**	0.78
Purge Start	12:05	**Pump Intake (ft-bmp)**	38.08	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	13:15	**Volumes Purged**	4.06	**Sample ID**	MW-03-06_052324	**Sampled by**	Donald Richmond
Sample Time	13:10	**Gallons Purged**	3.17	**Replicate/ Code No.**	DUP-11_052324	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
12:20	0	0	200	35.79	0.79	6.72	8.523	65	0.59	18.7	-36.2	Clear	None
12:25	5	5	200	35.79	1.06	6.73	8.473	66	0.42	18.5	-46.7	Clear	None
12:30	5	10	200	35.79	1.32	6.73	8.508	58	0.31	18.7	-51.4	Clear	None
12:35	5	15	200	35.79	1.59	6.73	8.515	54.44	0.28	18.7	-52.5	Clear	None
12:40	5	20	200	35.79	1.85	6.73	8.537	31	0.26	18.7	-54	Clear	None
12:45	5	25	200	35.79	2.11	6.73	8.524	19.63	0.25	18.8	-54.5	Clear	None
12:50	5	30	200	35.79	2.38	6.73	8.514	17.52	0.22	18.9	-55.1	Clear	None
12:55	5	35	200	35.79	2.64	6.73	8.503	14.93	0.24	18.6	-55.2	Clear	None
13:00	5	40	200	35.79	2.91	6.73	8.582	15	0.21	19.1	-56	Clear	None
13:05	5	45	200	35.79	3.17	6.73	8.646	14	0.2	19.5	-56.6	Clear	None

Constituent Sampled	Container	Number	Preservative
VOCs,1,4-Dioxane 8270D SIM	40 mL Glass	6	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-04-01(6)			**Date**	5/22/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	70.38	**Total Depth (ft-bmp)**	87.97	**Water Column (ft)**	17.59	**Gallons in Well**	2.86
Purge Start	12:05	**Pump Intake (ft-bmp)**	85.47	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	13:15	**Volumes Purged**	1.11	**Sample ID**	MW-04-01(6)_052224	**Sampled by**	Donald Richmond
Sample Time	13:05	**Gallons Purged**	3.17	**Replicate/ Code No.**	MW-04-01(6)_052224	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
12:20	0	0	200	70.38	0.79	6.86	0.905	71.72	0.62	19.7	-40	Clear	None
12:25	5	5	200	70.38	1.06	6.83	0.916	57.37	0.45	19.7	-47	Clear	None
12:30	5	10	200	70.38	1.32	6.83	0.916	60	0.41	19.5	-48.7	Clear	None
12:35	5	15	200	70.38	1.59	6.81	0.921	73.83	0.35	19.5	-50.4	Clear	None
12:40	5	20	200	70.38	1.85	6.81	0.924	76	0.34	19.7	-50.9	Clear	None
12:45	5	25	200	70.38	2.11	6.8	0.927	81	0.32	19.6	-51.7	Clear	None
12:50	5	30	200	70.38	2.38	6.79	0.93	93	0.29	19.7	-52.3	Clear	None
12:55	5	35	200	70.38	2.64	6.79	0.937	98	0.29	20	-52.2	Clear	None
13:00	5	40	200	70.38	2.91	6.79	0.934	106	0.27	19.9	-52.7	Clear	None
13:05	5	45	200	70.38	3.17	6.79	0.934	111	0.26	19.9	-52.8	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	9	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-04-04R			**Date**	5/22/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	4	**Well Casing Material**	Steel
Static Water Level (ft-bmp)	76.03	**Total Depth (ft-bmp)**	111.05	**Water Column (ft)**	35.02	**Gallons in Well**	22.76
Purge Start	14:00	**Pump Intake (ft-bmp)**	108.55	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	15:15	**Volumes Purged**	0.13	**Sample ID**	MW-04-04R_052224	**Sampled by**	Donald Richmond
Sample Time	15:00	**Gallons Purged**	2.91	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
14:10	0	0	200	76.03	0.53	6.95	1.104	75	1.12	20.7	-74.6	Clear	None
14:15	5	5	200	76.03	0.79	6.92	1.077	90	0.47	20.1	-81.6	Clear	None
14:20	5	10	200	76.03	1.06	6.91	1.082	90	0.45	20.3	-83	Clear	None
14:25	5	15	200	76.03	1.32	6.91	1.065	110	0.4	19.9	-87.4	Clear	None
14:30	5	20	200	76.03	1.59	6.93	1.047	122	0.43	20.1	-92	Clear	None
14:35	5	25	200	76.03	1.85	6.93	1.031	130	0.51	19.9	-97.2	Clear	None
14:40	5	30	200	76.03	2.11	6.91	1.037	138.67	0.5	19.9	-94.4	Clear	None
14:45	5	35	200	76.03	2.38	6.9	1.042	155	0.44	19.8	-91.3	Clear	None
14:50	5	40	200	76.03	2.64	6.89	1.047	169	0.38	19.7	-88.8	Clear	None
14:55	5	45	200	76.03	2.91	6.88	1.054	177	0.35	19.9	-88.1	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL
PFAS	250mL HDPE Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot

1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6

Condition of Well: Good condition

Well Completion: Stick-up

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-04-05(6)			**Date**	5/23/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	71.1 degrees F and Clear. The wind is blowing W/SW at 9.2 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	9.00	**Total Depth (ft-bmp)**	30	**Water Column (ft)**	21.00	**Gallons in Well**	3.41
Purge Start	12:20	**Pump Intake (ft-bmp)**	25	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	13:15	**Volumes Purged**	0.43	**Sample ID**	MW-04-05(6)_052324	**Sampled by**	Jackie Schulte
Sample Time	13:05	**Gallons Purged**	1.45	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
12:25	0	0	100	9.78	0.13	7.4	2.593	2.25	0.46	14.6	25.6	Clear	None
12:30	5	5	100	10.34	0.26	7.42	2.597	3.44	0.27	14.7	-24.5	Clear	None
12:35	5	10	100	10.39	0.40	7.39	2.59	2.65	0.31	16.7	-50.3	Clear	None
12:40	5	15	100	10.72	0.53	7.41	2.598	5.26	0.18	14.8	-65.3	Clear	None
12:45	5	20	100	10.99	0.66	7.4	2.6	3.5	0.07	14.8	-76.2	Clear	None
12:50	5	25	100	11.17	0.79	7.39	2.6	4.25	0.03	15	-82.7	Clear	None
12:55	5	30	100	11.30	0.92	7.39	2.597	4.22	0.01	15.2	-86.7	Clear	None
13:00	5	35	100	11.40	1.06	7.38	2.594	4.18	0	15.2	-90	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None
VOCs	40 mL Glass	3	HCL

Comments: Bolts are stripped.

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-04-06R			**Date**	5/22/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	4	**Well Casing Material**	Steel
Static Water Level (ft-bmp)	65.40	**Total Depth (ft-bmp)**	77.79	**Water Column (ft)**	12.39	**Gallons in Well**	8.05
Purge Start	10:10	**Pump Intake (ft-bmp)**	75.29	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	11:25	**Volumes Purged**	0.39	**Sample ID**	MW-04-06R_052224	**Sampled by**	Donald Richmond
Sample Time	11:15	**Gallons Purged**	3.17	**Replicate/ Code No.**	DUP-13_052224	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
10:25	0	0	200	65.40	0.79	7.18	5.526	33	0.5	19.4	-116.8	Clear	None
10:30	5	5	200	65.40	1.06	7.1	5.634	57	0.41	19.7	-127.5	Clear	None
10:35	5	10	200	65.40	1.32	7.12	5.751	155	0.32	20	-134.6	Clear	None
10:40	5	15	200	65.40	1.59	7.19	5.743	296	0.27	19.3	-146.7	Clear	None
10:45	5	20	200	65.40	1.85	7.22	5.741	287	0.26	19	-157.6	Clear	None
10:50	5	25	200	65.40	2.11	7.3	5.716	113	0.23	18	-177.1	Clear	None
10:55	5	30	200	65.40	2.38	7.29	5.822	133	0.22	17.8	-175.3	Clear	None
11:00	5	35	200	65.40	2.64	7.28	5.878	180	0.22	18.5	-171	Clear	None
11:05	5	40	200	65.40	2.91	7.26	6.08	273	0.22	19.1	-172	Clear	None
11:10	5	45	200	65.40	3.17	7.23	6.21	221	0.2	19.5	-171.6	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	6	HCL
PFAS	250mL HDPE Plastic	4	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot

1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6

Condition of Well: Good condition

Well Completion: Stick-up

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-05(3)			**Date**	5/21/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	82.0 degrees F and Mostly Clear. The wind is blowing S at 8.1 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	4.06	**Total Depth (ft-bmp)**	19.53	**Water Column (ft)**	15.47	**Gallons in Well**	2.51
Purge Start	17:25	**Pump Intake (ft-bmp)**	17.03	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	17:55	**Volumes Purged**	0.63	**Sample ID**	MW-05(3)_052124	**Sampled by**	Austin Westhuis
Sample Time	17:50	**Gallons Purged**	1.59	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
17:30	0	0	200	5.17	0.26	7.86	0.563	13.89	3.24	15.8	95.2	Clear	None
17:35	5	5	200	5.47	0.53	7.86	0.557	13.52	3.29	15.6	98.3	Clear	None
17:40	5	10	200	5.82	0.79	7.86	0.559	12.97	3.23	15.6	99	Clear	None
17:45	5	15	200	6.09	1.06	7.86	0.561	12.24	3.21	15.8	99.8	Clear	None
17:50	5	20	200	6.27	1.32	7.86	0.561	12.02	3.19	15.8	100.4	Clear	None

Constituent Sampled	Container	Number	Preservative
VOCs	40 mL Glass	3	HCL

Comments: Water level did not stabilize. Did not meet drawdown requirements.

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot

1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3

Condition of Well: Good condition

Well Completion: Stick-up

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: 2035

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-12-01			**Date**	5/24/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	4	**Well Casing Material**	Steel
Static Water Level (ft-bmp)	79.75	**Total Depth (ft-bmp)**	90.95	**Water Column (ft)**	11.20	**Gallons in Well**	7.28
Purge Start	08:30	**Pump Intake (ft-bmp)**	88.45	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	09:30	**Volumes Purged**	0.33	**Sample ID**	MW-12-01_052424	**Sampled by**	Donald Richmond
Sample Time	09:20	**Gallons Purged**	2.38	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
08:50	0	0	200	79.75	1.06	7.18	1.478	149.49	0.74	13.9	-125.2	Clear	None
08:55	5	5	200	79.75	1.32	7.25	1.481	145	0.53	14	-139	Clear	None
09:00	5	10	200	79.75	1.59	7.27	1.483	147	0.43	14	-148.2	Clear	None
09:05	5	15	200	79.75	1.85	7.28	1.486	141	0.37	14.1	-154.6	Clear	None
09:10	5	20	200	79.75	2.11	7.29	1.498	133	0.33	14.4	-160.6	Clear	None
09:15	5	25	200	79.75	2.38	7.29	1.492	141	0.29	14.1	-163.7	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 522	250 mL Glass	2	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-12-02			**Date**	5/24/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	4	**Well Casing Material**	Steel
Static Water Level (ft-bmp)	68.61	**Total Depth (ft-bmp)**	93.3	**Water Column (ft)**	24.69	**Gallons in Well**	16.05
Purge Start	10:05	**Pump Intake (ft-bmp)**	90.8	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	11:00	**Volumes Purged**	0.15	**Sample ID**	MW-12-02_052424	**Sampled by**	Donald Richmond
Sample Time	10:55	**Gallons Purged**	2.38	**Replicate/ Code No.**	DUP-04_052424	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
10:20	0	0	200	68.61	0.79	8.04	0.67	34.13	0.47	16.6	-175.7	Clear	None
10:25	5	5	200	68.61	1.06	8.01	0.674	31	0.37	16.8	-193.6	Clear	None
10:30	5	10	200	68.61	1.32	7.98	0.678	40	0.33	16.8	-199	Clear	None
10:35	5	15	200	68.61	1.59	7.97	0.683	41	0.28	16.7	-202.5	Clear	None
10:40	5	20	200	68.61	1.85	7.97	0.681	26	0.27	16.5	-203	Clear	None
10:45	5	25	200	68.61	2.11	7.95	0.687	26.36	0.24	16.7	-202	Clear	None
10:50	5	30	200	68.61	2.38	7.93	0.692	24.72	0.22	16.8	-203	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 522	250 mL Glass	4	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-12-05R			**Date**	5/20/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	4	**Well Casing Material**	Steel
Static Water Level (ft-bmp)	74.60	**Total Depth (ft-bmp)**	109.3	**Water Column (ft)**	34.70	**Gallons in Well**	22.55
Purge Start	16:15	**Pump Intake (ft-bmp)**	106.8	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	16:50	**Volumes Purged**	0.06	**Sample ID**	MW-12-05R_052024	**Sampled by**	Donald Richmond
Sample Time	16:45	**Gallons Purged**	1.32	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
16:25	0	0	200	74.60	0.53	10.33	0.444	37.35	1.82	20.4	47	Clear	None
16:30	5	5	200	74.60	0.79	10.35	0.445	34	1.93	20.8	40.8	Clear	None
16:35	5	10	200	74.60	1.06	10.37	0.449	33	2.02	21.1	37.4	Clear	None
16:40	5	15	200	74.60	1.32	10.28	0.449	33.14	2.19	20.8	41	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 522	250 mL Glass	2	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-12-06			**Date**	5/24/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	61.0 degrees F and Clear. The wind is blowing undefined at 0.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	74.10	**Total Depth (ft-bmp)**	103.62	**Water Column (ft)**	29.52	**Gallons in Well**	4.80
Purge Start	09:30	**Pump Intake (ft-bmp)**	101.12	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	10:35	**Volumes Purged**	0.71	**Sample ID**	MW-12-06_052424	**Sampled by**	Austin Westhuis
Sample Time	10:30	**Gallons Purged**	3.43	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
09:35	0	0	200	74.10	0.26	7.26	0.749	73.86	3.27	16.5	-32.9	Clear	None
09:40	5	5	200	74.10	0.53	7.28	0.753	95.44	4.93	17	3.8	Clear	None
09:45	5	10	200	74.10	0.79	7.29	0.758	158.41	5.62	17.4	16.4	Clear	None
09:50	5	15	200	74.10	1.06	7.3	0.757	198.22	6.26	17.4	32.5	Clear	None
09:55	5	20	200	74.10	1.32	7.33	0.753	213.45	6.95	17.4	43.7	Clear	None
10:00	5	25	200	74.10	1.59	7.35	0.75	239.01	7.72	17.4	51.3	Clear	None
10:05	5	30	200	74.10	1.85	7.38	0.755	294.51	8.2	17.7	64.3	Clear	None
10:10	5	35	200	74.10	2.11	7.4	0.753	112.85	8.89	17.8	71.66	Clear	None
10:15	5	40	200	74.10	2.38	7.43	0.754	98.61	9.11	18	80.1	Clear	None
10:20	5	45	200	74.10	2.64	7.44	0.759	122.11	9.6	18.3	84.7	Clear	None
10:25	5	50	200	74.10	2.91	7.47	0.761	125.21	10.09	18.5	92.5	Clear	None
10:30	5	55	200	74.10	3.17	7.49	0.762	132.63	9.93	18.6	96.4	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 522	250 mL Amber	2	HCL

Comments: ORP did not meet stabilization criteria. All other groundwater monitoring criteria stable.

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Well Locked at Arrival: yes
Condition of Well: Good condition
Well Locked at Departure: yes
Well Completion: Stick-up
Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-12-09			**Date**	5/16/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	54.0 degrees F and Clear. The wind is blowing E at 3.4 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	11.93	**Total Depth (ft-bmp)**	19	**Water Column (ft)**	7.07	**Gallons in Well**	1.15
Purge Start	09:52	**Pump Intake (ft-bmp)**	14.5	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	11:11	**Volumes Purged**	1.82	**Sample ID**	MW-12-09_051424	**Sampled by**	Jackie Schulte
Sample Time	10:55	**Gallons Purged**	2.09	**Replicate/ Code No.**	DUP-01_051624	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
09:55	0	0	100	11.94	0.08	7.05	1.626	17.65	1.1	13.4	232.1	Clear	None
10:00	5	5	100	11.94	0.21	7.08	1.623	21.17	0.69	15.4	208.3	Clear	None
10:05	5	10	100	11.94	0.34	7.12	1.617	8.57	0.31	13.4	177.4	Clear	None
10:10	5	15	100	11.94	0.00	7.12	1.614	6.8	0.22	13.2	147.5	Clear	None
10:15	5	20	100	11.94	0.61	7.12	1.611	8.08	0.1	13.2	120.9	Clear	None
10:20	5	25	100	11.94	0.74	7.12	1.616	9.06	0	13.1	101.1	Clear	None
10:25	5	30	100	11.94	0.87	7.11	1.636	8.12	0	12.9	83.6	Clear	None
10:30	5	35	100	11.94	1.00	7.1	1.733	4.63	0	13	64	Clear	None
10:35	5	40	100	11.94	1.14	7.08	1.812	5.88	0	13	49.1	Clear	None
10:40	5	45	100	11.94	1.27	7.07	1.891	3.42	0	13	34.6	Clear	None
10:45	5	50	100	11.94	1.40	7.06	1.924	4.75	0	13.4	22.3	Clear	None
10:50	5	55	100	11.94	1.53	7.06	1.946	4.99	0	13.7	12.9	Clear	None
10:55	5	60	100	11.94	1.66	7.06	1.967	3.64	0	13.5	4.7	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM,VOCs SW-846 8260C	40 mL Glass	6	HCL
PFAS	250 mL Glass	4	None

Comments: Well did not stabilize after 65 minutes of purging.

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location:
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-12-10R			**Date**	5/22/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	73.0 degrees F and Partly Cloudy. The wind is blowing SW at 15.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	11.24	**Total Depth (ft-bmp)**	17.96	**Water Column (ft)**	6.72	**Gallons in Well**	1.09
Purge Start	09:30	**Pump Intake (ft-bmp)**	17	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	10:38	**Volumes Purged**	2.29	**Sample ID**	MW-12-10R_052224	**Sampled by**	Jarrett Humpula
Sample Time	10:35	**Gallons Purged**	2.5	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
09:33	0	0	150	11.24	0.12	6.9	2.223	56.93	1.45	15.8	203	Clear	None
09:38	5	5	150	11.65	0.32	6.88	2.197	53.51	0.19	15.5	20.7	Clear	None
09:43	5	10	150	11.68	0.52	6.88	2.11	37.02	0	14.9	-5.1	Clear	None
09:48	5	15	150	11.70	0.71	6.86	2.117	40.86	0	15	-7.2	Clear	None
09:53	5	20	150	11.70	0.91	6.85	2.172	55.11	0	15.1	-8.7	Clear	None
09:58	5	25	150	11.70	1.11	6.84	2.217	67.84	0	15.2	-9.5	Clear	None
10:03	5	30	150	11.70	1.31	6.84	2.257	90	0	15.2	-10	Clear	None
10:08	5	35	150	11.70	1.51	6.84	2.288	110.19	0	15.2	-11	Clear	None
10:13	5	40	150	11.70	1.70	6.84	2.328	138.39	0	15.1	-9.4	Clear	None
10:18	5	45	150	11.70	1.90	6.84	2.337	152.1	0	15	-8.8	Clear	None
10:23	5	50	150	11.70	2.10	6.85	2.364	158.67	0	15.2	-7.6	Clear	None
10:28	5	55	150	11.70	2.30	6.85	2.353	167.31	0	14.8	-6.2	Clear	None
10:33	5	60	150	11.70	2.50	6.85	2.395	192.83	0	15.5	-6.5	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-12-11			**Date**	5/22/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	75.9 degrees F and Mostly Cloudy. The wind is blowing W/SW at 13.9 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	3.80	**Total Depth (ft-bmp)**	16.6	**Water Column (ft)**	12.80	**Gallons in Well**	2.08
Purge Start	10:50	**Pump Intake (ft-bmp)**	16	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	12:02	**Volumes Purged**	1.15	**Sample ID**	MW-12-11_052224	**Sampled by**	Jarrett Humpula
Sample Time	12:00	**Gallons Purged**	2.4	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
10:55	0	0	150	4.57	0.20	6.59	4.17	64.99	0.54	13.9	-49.6	Clear	None
11:00	5	5	150	5.14	0.40	6.61	4.05	100.2	0	13.7	-56.7	Clear	None
11:05	5	10	150	5.40	0.59	6.63	3.897	129.19	0	14.1	-59.7	Clear	None
11:10	5	15	150	5.55	0.79	6.65	3.698	196.9	0	14.1	-58.5	Clear	None
11:15	5	20	150	5.68	0.99	6.65	3.641	253.42	0	14.1	-57.3	Clear	None
11:20	5	25	150	5.73	1.19	6.65	3.591	300.36	0	14	-56.6	Clear	None
11:25	5	30	150	5.75	1.39	6.66	3.569	359.77	0	14.1	-56.4	Clear	None
11:30	5	35	150	5.77	1.59	6.66	3.508	355.83	0	14	-56	Clear	None
11:35	5	40	150	5.77	1.78	6.67	3.466	372.06	0	14	-55.9	Clear	None
11:40	5	45	150	5.77	1.98	6.67	3.442	415.87	0	14.2	-56	Clear	None
11:45	5	50	150	5.77	2.18	6.67	3.459	451.28	0	14.2	-56	Clear	None
11:50	5	55	150	5.77	2.38	6.68	3.413	507.92	0	14.2	-56.1	Clear	None
11:55	5	60	150	5.77	2.58	6.69	3.383	550.98	0	14	-56.4	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Park outside plant 6
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-12-12			**Date**	5/22/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	77.0 degrees F and Clear. The wind is blowing W/SW at 17.2 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	7.33	**Total Depth (ft-bmp)**	17.2	**Water Column (ft)**	9.87	**Gallons in Well**	1.60
Purge Start	12:28	**Pump Intake (ft-bmp)**	16.2	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	13:37	**Volumes Purged**	1.25	**Sample ID**	MW-12-12_052224	**Sampled by**	Jarrett Humpula
Sample Time	13:35	**Gallons Purged**	2	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
12:32	0	0	150	7.97	0.16	7.32	1.504	205.85	2.18	17.8	148	Clear	None
12:37	5	5	150	8.74	0.36	7.3	1.44	175.56	0.24	18	-22.6	Clear	None
12:41	4	9	150	9.08	0.52	7.35	1.411	136.41	0.11	17.8	-36	Clear	None
12:46	5	14	150	9.58	0.71	7.37	1.392	114.54	0.03	17.6	-24.6	Clear	None
12:51	5	19	150	10.03	0.91	7.37	1.381	103.67	0	17.4	-15.5	Clear	None
12:56	5	24	150	10.37	1.11	7.38	1.367	85.45	0	17.4	-8.3	Clear	None
13:01	5	29	150	10.75	1.31	7.37	1.337	73.59	0	17.1	1.5	Clear	None
13:06	5	34	150	11.02	1.51	7.37	1.322	86.97	0.03	17.1	12	Clear	None
13:11	5	39	150	11.37	1.70	7.37	1.306	98.8	0.07	17.2	21.1	Clear	None
13:16	5	44	150	11.62	1.90	7.37	1.28	121.78	0.05	17	28.2	Clear	None
13:21	5	49	150	11.91	2.10	7.37	1.26	164.23	0.03	16.8	35.7	Clear	None
13:26	5	54	150	12.23	2.30	7.36	1.24	203.14	0	17	42.5	Clear	None
13:31	5	59	150	12.41	2.50	7.36	1.228	221.52	0	16.8	44.2	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-12-13			**Date**	5/23/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	71.1 degrees F and Clear. The wind is blowing W/SW at 9.2 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	10.86	**Total Depth (ft-bmp)**	25.48	**Water Column (ft)**	14.62	**Gallons in Well**	2.38
Purge Start	12:15	**Pump Intake (ft-bmp)**	21.98	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	12:50	**Volumes Purged**	0.78	**Sample ID**	MW-12-13_052324	**Sampled by**	Austin Westhuis
Sample Time	12:45	**Gallons Purged**	1.85	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
12:20	0	0	200	12.51	0.26	7.43	0.565	12.38	0.88	12	149.2	Clear	None
12:25	5	5	200	12.62	0.53	7.43	0.561	8.98	0.79	12.1	148.1	Clear	None
12:30	5	10	200	12.68	0.79	7.42	0.556	5.37	0.75	12.1	145	Clear	None
12:35	5	15	200	12.72	1.06	7.42	0.553	4.88	0.72	12	145	Clear	None
12:40	5	20	200	12.74	1.32	7.42	0.551	4.61	0.7	12	141.9	Clear	None
12:45	5	25	200	12.75	1.59	7.42	0.55	4.24	0.67	12	141.1	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS - Method 537 mod.	250mL HDPE Plastic	2	None
Total Metals	125 mL Plastic	1	HNO3

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-12-18			**Date**	5/14/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	60.1 degrees F and Clear. The wind is blowing at 5.8 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	21.71	**Total Depth (ft-bmp)**	33	**Water Column (ft)**	11.29	**Gallons in Well**	1.83
Purge Start	11:36	**Pump Intake (ft-bmp)**	30	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	00:45	**Volumes Purged**	0.99	**Sample ID**	MW-12-18_051424	**Sampled by**	Jackie Schulte
Sample Time	12:40	**Gallons Purged**	1.82	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
11:40	0	0	100	22.19	0.11	7.15	2.777	12.54	1.38	15.8	163.3	Clear	Mild
11:45	5	5	100	22.54	0.24	7	2.747	13.99	0.57	15.2	141.4	Clear	Mild
11:50	5	10	100	22.60	0.37	6.98	2.754	6.41	0.43	15.6	123.7	Clear	Mild
11:55	5	15	100	22.60	0.50	6.96	2.735	11.96	0.36	17.2	101.6	Clear	Mild
12:00	5	20	100	22.74	0.63	6.98	2.75	9.3	0.26	14.7	87.5	Clear	Mild
12:05	5	25	100	22.74	0.77	6.96	2.726	20	0.22	16.3	71.7	Clear	Mild
12:10	5	30	100	22.94	0.90	6.97	2.744	16.6	0.11	14.4	60.6	Clear	Mild
12:15	5	35	100	22.97	1.03	6.96	2.747	8.75	0.12	15.1	54.2	Clear	Mild
12:20	5	40	100	22.97	1.16	6.95	2.752	8.11	0.12	15.7	45.6	Clear	Mild
12:25	5	45	100	22.97	1.29	6.95	2.76	7.73	0.14	16.3	39.8	Clear	Mild
12:30	5	50	100	23.10	1.43	6.96	2.777	26.57	0.03	14.5	33.5	Clear	Mild
12:35	5	55	100	23.10	1.56	6.96	2.778	30.5	0.16	15.4	30.3	Clear	Mild

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None
VOCs	40 mL Glass	3	HCL

Comments: Well did not stabilize after 60 minutes of purging.

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location:

Condition of Well: Good condition

Well Completion: Stick-up

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-12-20			**Date**	5/21/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	82.0 degrees F and Mostly Clear. The wind is blowing S at 8.1 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	66.50	**Total Depth (ft-bmp)**	79.45	**Water Column (ft)**	12.95	**Gallons in Well**	2.10
Purge Start	17:05	**Pump Intake (ft-bmp)**	77	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	17:45	**Volumes Purged**	0.50	**Sample ID**	MW-12-20_052124	**Sampled by**	Billy Cobern
Sample Time	17:45	**Gallons Purged**	1.06	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
17:10	0	0	100	66.82	0.13	7.13	1.525	456.78	5.95	25.8	-67.3	Clear	None
17:15	5	5	100	67.05	0.26	6.99	1.571	543.86	5.36	23.5	-72.8	Clear	None
17:20	5	10	100	67.28	0.40	6.96	1.46	248.84	1.41	20.4	-84.9	Clear	None
17:25	5	15	100	67.50	0.53	6.97	1.454	115.48	0.99	19.7	-85.2	Clear	None
17:30	5	20	100	67.71	0.66	6.97	1.451	132.2	1.09	20.5	-84	Clear	None
17:35	5	25	100	67.92	0.79	6.97	1.447	182.65	1.13	20.1	-81.4	Clear	None
17:40	5	30	100	68.12	0.92	6.96	1.445	189.98	1.17	20	-81	Clear	None
17:45	5	35	100	68.31	1.06	6.97	1.444	186.67	1.18	20	-80.6	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments: Didn't meet drawdown requirements.

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-12-21			**Date**	5/16/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	66.74	**Total Depth (ft-bmp)**	78.04	**Water Column (ft)**	11.30	**Gallons in Well**	1.84
Purge Start	14:40	**Pump Intake (ft-bmp)**	75.54	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	15:10	**Volumes Purged**	0.58	**Sample ID**	MW-12-21_051624	**Sampled by**	Donald Richmond
Sample Time	15:05	**Gallons Purged**	1.06	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
14:50	0	0	200	66.74	0.53	6.68	1.951	11.74	0.96	26.5	-18.5	Clear	None
14:55	5	5	200	66.74	0.79	6.68	1.845	11.79	0.89	24	-14.6	Clear	None
15:00	5	10	200	66.74	1.06	6.71	1.799	14.85	0.87	23.9	-8.5	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
1,4-Dioxane 8270D SIM,VOCs	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-13-22			**Date**	5/16/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	69.23	**Total Depth (ft-bmp)**	96.1	**Water Column (ft)**	26.87	**Gallons in Well**	4.37
Purge Start	13:20	**Pump Intake (ft-bmp)**	93.7	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	14:25	**Volumes Purged**	0.67	**Sample ID**	MW-13-22_051624	**Sampled by**	Donald Richmond
Sample Time	14:20	**Gallons Purged**	2.91	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
13:30	0	0	200	69.23	0.53	6.79	2.193	18.07	1.42	25.9	-28.2	Clear	None
13:35	5	5	200	69.23	0.79	6.78	2.16	26	0.47	26.4	-45.7	Clear	None
13:40	5	10	200	69.23	1.06	6.77	2.134	42	0.43	24.9	-47.5	Clear	None
13:45	5	15	200	69.23	1.32	6.77	2.133	46	0.36	26	-49.5	Clear	None
13:50	5	20	200	69.23	1.59	6.78	2.085	63	0.25	25.2	-51.2	Clear	None
13:55	5	25	200	69.23	1.85	6.77	2.16	105.66	0.25	27	-54.9	Clear	None
14:00	5	30	200	69.23	2.11	6.76	2.183	125	0.24	27.2	-56.2	Clear	None
14:05	5	35	200	69.23	2.38	6.76	2.179	144	0.22	27.2	-58	Clear	None
14:10	5	40	200	69.23	2.64	6.76	2.114	156	0.2	25.5	-61.3	Clear	None
14:15	5	45	200	69.23	2.91	6.77	2.092	155.95	0.18	25.5	-63.7	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM,VOCs	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-13-23			**Date**	5/21/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	66.66	**Total Depth (ft-bmp)**	77.5	**Water Column (ft)**	10.84	**Gallons in Well**	1.76
Purge Start	09:20	**Pump Intake (ft-bmp)**	75.0	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	10:55	**Volumes Purged**	2.55	**Sample ID**	MW-13-23_052124	**Sampled by**	Donald Richmond
Sample Time	10:50	**Gallons Purged**	4.49	**Replicate/ Code No.**	MW-13-23_052124	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
09:30	0	0	200	66.66	0.53	6.33	1.668	75	1.1	16	180	Clear	None
09:35	5	5	200	66.66	0.79	6.43	1.676	45	0.61	16.1	176.6	Clear	None
09:40	5	10	200	66.66	1.06	6.5	1.666	25	0.44	16.1	172.9	Clear	None
09:45	5	15	200	66.66	1.32	6.52	1.665	19.77	0.44	16	171.4	Clear	None
09:50	5	20	200	66.66	1.59	6.66	1.688	16.85	0.47	16.6	78.7	Clear	None
10:30	40	60	200	66.66	3.70	6.58	1.681	8.07	0.65	16.9	122.1	Clear	None
10:35	5	65	200	66.66	3.96	6.52	1.691	6.91	0.3	17.4	117.1	Clear	None
10:40	5	70	200	66.66	4.23	6.52	1.7	7.96	0.25	17.4	114	Clear	None
10:45	5	75	200	66.66	4.49	6.52	1.7	7.59	0.22	17.4	110.9	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	9	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-13-24			**Date**	5/21/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	65.49	**Total Depth (ft-bmp)**	77.33	**Water Column (ft)**	11.84	**Gallons in Well**	1.92
Purge Start	14:15	**Pump Intake (ft-bmp)**	74.83	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	15:20	**Volumes Purged**	1.52	**Sample ID**	MW-13-24_052124	**Sampled by**	Donald Richmond
Sample Time	15:15	**Gallons Purged**	2.91	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
14:25	0	0	200	65.49	0.53	10.15	0.575	9.43	8.6	20.5	62.5	Clear	None
14:30	5	5	200	65.49	0.79	6.91	0.877	14	3.23	20	-37.8	Clear	None
14:35	5	10	200	65.49	1.06	6.79	0.942	22	2.04	20	-43.9	Clear	None
14:40	5	15	200	65.49	1.32	6.78	0.973	29.92	1.6	20.3	-47.3	Clear	None
14:45	5	20	200	65.49	1.59	6.76	0.995	39	1.25	20.5	-50.2	Clear	None
14:50	5	25	200	65.49	1.85	6.75	1.015	51	0.97	20.5	-53.3	Clear	None
14:55	5	30	200	65.49	2.11	6.75	1.012	66	0.8	20	-54.8	Clear	None
15:00	5	35	200	65.49	2.38	6.74	1.025	91	0.58	20.2	-57.6	Clear	None
15:05	5	40	200	65.49	2.64	6.75	1.026	101	0.51	20.4	-59.6	Clear	None
15:10	5	45	200	65.49	2.91	6.75	1.049	110	0.46	20.6	-61.2	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-13-25			**Date**	5/21/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	65.52	**Total Depth (ft-bmp)**	75	**Water Column (ft)**	9.48	**Gallons in Well**	1.54
Purge Start	13:15	**Pump Intake (ft-bmp)**	72.5	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	13:55	**Volumes Purged**	1.03	**Sample ID**	MW-13-25_052124	**Sampled by**	Donald Richmond
Sample Time	13:50	**Gallons Purged**	1.59	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
13:30	0	0	200	65.52	0.79	6.41	1.509	3.28	0.4	21	-19.3	Clear	None
13:35	5	5	200	65.52	1.06	6.4	1.526	3.73	0.46	21.2	-24.4	Clear	None
13:40	5	10	200	65.52	1.32	6.4	1.511	4.05	0.44	21.7	-26.1	Clear	None
13:45	5	15	200	65.52	1.59	6.41	1.506	3.93	0.42	21.7	-28	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-13-28			**Date**	5/20/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	77.0 degrees F and Partly Cloudy.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	4	**Well Casing Material**	Carbon Steel
Static Water Level (ft-bmp)	69.94	**Total Depth (ft-bmp)**	114.75	**Water Column (ft)**	44.81	**Gallons in Well**	29.12
Purge Start	13:30	**Pump Intake (ft-bmp)**	112	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	14:30	**Volumes Purged**	0.05	**Sample ID**	MW-13-28_052024	**Sampled by**	Billy Cobern
Sample Time	14:30	**Gallons Purged**	1.59	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
13:35	0	0	100	70.25	0.13	6.83	1.738	376.96	5.79	16.7	-61.3	Clear	None
13:40	5	5	100	70.25	0.26	6.84	1.786	114.86	1.24	16.4	-73.8	Clear	None
13:45	5	10	100	70.25	0.40	6.84	1.785	330.58	0.54	16.4	-77.3	Clear	None
13:50	5	15	100	70.25	0.53	6.84	1.786	336.37	0.27	16.5	-78.9	Clear	None
13:55	5	20	100	70.25	0.66	6.83	1.785	149.47	0.19	16.9	-80.5	Clear	None
14:00	5	25	100	70.25	0.79	6.83	1.79	302.23	0.16	17.6	-82.1	Clear	None
14:05	5	30	100	70.25	0.92	6.83	1.79	240.76	0.15	17.8	-82.7	Clear	None
14:10	5	35	100	70.25	1.06	6.83	1.788	135.34	0.15	17.6	-83.2	Clear	None
14:15	5	40	100	70.25	1.19	6.83	1.793	105.48	0.15	17.7	-83.9	Clear	None
14:20	5	45	100	70.25	1.32	6.83	1.795	66.85	0.14	17.5	-83.1	Clear	None
14:25	5	50	100	70.25	1.45	6.91	1.784	161.98	0.15	17.3	-83.9	Clear	None
14:30	5	55	100	70.25	1.59	6.84	1.787	169.86	0.15	17.5	-83.4	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 522	250 mL Amber	2	HCL

Comments: Turbidity didn't stabilize within 60 minutes

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-13-29			**Date**	5/16/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	65.30	**Total Depth (ft-bmp)**	76.3	**Water Column (ft)**	11.00	**Gallons in Well**	1.79
Purge Start	15:40	**Pump Intake (ft-bmp)**	73.8	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	16:40	**Volumes Purged**	1.47	**Sample ID**	MW-13-29_051624	**Sampled by**	Donald Richmond
Sample Time	16:35	**Gallons Purged**	2.64	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
15:55	0	0	200	65.30	0.79	6.39	2.686	14.87	0.88	18.6	7.7	Clear	None
16:00	5	5	200	65.30	1.06	6.4	2.704	17.82	0.65	19	-8.1	Clear	None
16:05	5	10	200	65.30	1.32	6.41	2.727	20.22	0.65	19.3	-16.6	Clear	None
16:10	5	15	200	65.30	1.59	6.41	2.71	23	0.52	18	-19.9	Clear	None
16:15	5	20	200	65.30	1.85	6.41	2.753	30.52	0.42	18.7	-20.8	Clear	None
16:20	5	25	200	65.30	2.11	6.4	2.81	42.5	0.33	19.3	-21	Clear	None
16:25	5	30	200	65.30	2.38	6.4	2.778	50.78	0.3	18.8	-19.7	Clear	None
16:30	5	35	200	65.30	2.64	6.4	2.757	65	0.23	18.2	-18.7	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-13-32			**Date**	5/22/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	75.0 degrees F and Mostly Cloudy.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	6.60	**Total Depth (ft-bmp)**	12.65	**Water Column (ft)**	6.05	**Gallons in Well**	0.98
Purge Start	10:30	**Pump Intake (ft-bmp)**	10.15	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	11:20	**Volumes Purged**	2.69	**Sample ID**	MW-13-32_052224	**Sampled by**	Austin Westhuis
Sample Time	11:00	**Gallons Purged**	2.64	**Replicate/ Code No.**	DUP-05_052224	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
10:35	0	0	200	6.92	0.26	6.76	1.092	115.22	0.54	12.5	172	Clear	None
10:40	5	5	200	6.92	0.53	6.8	1.055	51.49	0.31	12.4	169.3	Clear	None
10:45	5	10	200	6.92	0.79	6.84	1.005	22.71	0.27	12.3	167	Clear	None
10:50	5	15	200	6.92	1.06	6.86	0.93	9.14	0.26	12.2	165.4	Clear	None
10:55	5	20	200	6.92	1.32	6.87	0.917	8.56	0.26	12.2	164.6	Clear	None
11:00	5	25	200	6.92	1.59	6.89	0.909	8.29	0.25	12.2	161.6	Clear	None

Constituent Sampled	Container	Number	Preservative
SVOCs	1L Amber	4	None
Total Metals	125 mL Plastic	2	HNO3

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot

1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3

Condition of Well: Good condition

Well Completion: Stick-up

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: 2035

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-13-34			**Date**	5/16/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	66.45	**Total Depth (ft-bmp)**	79.71	**Water Column (ft)**	13.26	**Gallons in Well**	2.15
Purge Start	11:25	**Pump Intake (ft-bmp)**	77.21	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	12:35	**Volumes Purged**	1.60	**Sample ID**	MW-13-34_051624	**Sampled by**	Donald Richmond
Sample Time	12:30	**Gallons Purged**	3.43	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
12:10	0	0	200	66.45	2.38	6.87	2.46	79	0.35	22.1	-106.1	Clear	None
12:15	5	5	200	66.45	2.64	6.87	2.461	67.44	0.19	22	-108.5	Clear	None
12:20	5	10	200	66.45	2.91	6.85	2.455	80	0.06	21.9	-110.6	Clear	None
12:25	5	15	200	66.45	3.17	6.85	2.461	83	0.03	22	-111	Clear	None
12:30	5	20	200	66.45	3.43	6.84	2.484	104	0.01	22.4	-112.2	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM,VOCs	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-13-36R			**Date**	5/23/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	72.0 degrees F and Clear. The wind is blowing W at 12.8 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	6.41	**Total Depth (ft-bmp)**	12.61	**Water Column (ft)**	6.20	**Gallons in Well**	1.01
Purge Start	13:25	**Pump Intake (ft-bmp)**	10.11	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	14:10	**Volumes Purged**	2.36	**Sample ID**	MW-13-36R_052324	**Sampled by**	Austin Westhuis
Sample Time	14:05	**Gallons Purged**	2.38	**Replicate/ Code No.**	DUP-12_052324	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
13:30	0	0	200	6.41	0.26	12	1.716	11.35	0.34	13.4	-30.5	Clear	None
13:35	5	5	200	6.41	0.53	12.06	1.708	9.93	0.21	13.3	-44.8	Clear	None
13:40	5	10	200	6.41	0.79	12.12	1.695	8.24	0.11	13.2	-61.9	Clear	None
13:45	5	15	200	6.41	1.06	12.14	1.673	7.58	0.09	13.3	-79.2	Clear	None
13:50	5	20	200	6.41	1.32	12.15	1.646	5.51	0.09	13.2	-88.9	Clear	None
13:55	5	25	200	6.41	1.59	12.16	1.62	4.91	0.09	13.1	-90.6	Clear	None
14:00	5	30	200	6.41	1.85	12.16	1.613	4.22	0.09	13.1	-88.1	Clear	None
14:05	5	35	200	6.41	2.11	12.17	1.609	4.03	0.09	13.1	-88.1	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS - Method 537 mod.	250mL HDPE Plastic	4	None
Total Metals	125 mL Plastic	2	HNO3

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-13-37			**Date**	5/20/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	77.0 degrees F and Clear. The wind is blowing NE at 9.2 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	4	**Well Casing Material**	Carbon Steel
Static Water Level (ft-bmp)	69.89	**Total Depth (ft-bmp)**	114.35	**Water Column (ft)**	44.46	**Gallons in Well**	28.90
Purge Start	15:45	**Pump Intake (ft-bmp)**	112	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	16:45	**Volumes Purged**	0.06	**Sample ID**	MW-13-37_052024	**Sampled by**	Billy Cobern
Sample Time	16:45	**Gallons Purged**	1.59	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
15:50	0	0	100	70.20	0.13	8.82	0.67	190.68	4.35	22.2	26	Clear	None
15:55	5	5	100	70.20	0.26	8.83	0.665	187.57	4.58	22.3	23.8	Clear	None
16:00	5	10	100	70.20	0.40	8.83	0.663	176.91	4.8	22.3	22.4	Clear	None
16:05	5	15	100	70.20	0.53	8.83	0.661	127.43	4.9	22.3	20.9	Clear	None
16:10	5	20	100	70.20	0.66	8.83	0.659	98.76	4.93	22.3	19.7	Clear	None
16:15	5	25	100	70.20	0.79	8.83	0.656	76.54	4.94	22.2	17.9	Clear	None
16:20	5	30	100	70.20	0.92	8.83	0.655	47.47	4.87	22.1	15.7	Clear	None
16:25	5	35	100	70.20	1.06	8.83	0.646	24.86	4.25	22	8.3	Clear	None
16:30	5	40	100	70.20	1.19	8.82	0.637	12.27	2.5	21.8	-11.7	Clear	None
16:35	5	45	100	70.20	1.32	8.73	0.635	11.12	1.11	22.3	-32.4	Clear	None
16:40	5	50	100	70.20	1.45	8.73	0.635	10.09	1.08	22.5	-37.7	Clear	None
16:45	5	55	100	70.20	1.59	8.71	0.635	10.28	1.03	22.6	-40.3	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 522	250 mL Amber	2	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-13-38			**Date**	5/24/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	68.0 degrees F and Clear. The wind is blowing E/NE at 5.8 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	4	**Well Casing Material**	Carbon Steel
Static Water Level (ft-bmp)	70.58	**Total Depth (ft-bmp)**	126.5	**Water Column (ft)**	55.92	**Gallons in Well**	36.35
Purge Start	10:45	**Pump Intake (ft-bmp)**	124	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	11:40	**Volumes Purged**	0.04	**Sample ID**	MW-13-38_052424	**Sampled by**	Billy Cobern
Sample Time	11:40	**Gallons Purged**	1.45	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
10:50	0	0	100	70.65	0.13	9.51	2.42	96.78	3.25	21.2	3.9	Clear	None
10:55	5	5	100	70.65	0.26	9.38	2.462	78.72	3.11	21.9	-56	Clear	None
11:00	5	10	100	70.65	0.40	8.1	2.627	62.61	3.84	21.4	-76.5	Clear	None
11:05	5	15	100	70.65	0.53	7.16	2.938	121	3.38	20.6	-111.1	Clear	None
11:10	5	20	100	70.65	0.66	7.14	2.971	50.94	1.99	20.4	-120.1	Clear	None
11:15	5	25	100	70.65	0.79	7.15	2.981	28.31	1.17	19.9	-126.4	Clear	None
11:20	5	30	100	70.65	0.92	7.16	2.973	34.17	0.7	20.3	-129	Clear	None
11:25	5	35	100	70.65	1.06	7.16	2.971	89.57	0.92	20.6	-131.2	Clear	None
11:30	5	40	100	70.65	1.19	7.16	2.993	23.62	0.35	20.8	-129.3	Clear	None
11:35	5	45	100	70.65	1.32	7.16	2.99	21.89	0.34	20.9	-129.9	Clear	None
11:40	5	50	100	70.65	1.45	7.16	2.99	22.12	0.34	21	-130.2	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 522	250 mL Amber	2	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: no
Well Locked at Departure: no
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-13-41			**Date**	5/21/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	63.0 degrees F and Cloudy. The wind is blowing undefined at 0.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	55.29	**Total Depth (ft-bmp)**	81.5	**Water Column (ft)**	26.21	**Gallons in Well**	4.26
Purge Start	10:35	**Pump Intake (ft-bmp)**	79	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	11:15	**Volumes Purged**	0.25	**Sample ID**	MW-13-41_052125	**Sampled by**	Billy Cobern
Sample Time	11:15	**Gallons Purged**	1.06	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
10:40	0	0	100	55.69	0.13	7.22	2.922	24.41	4.02	16.4	73.5	Clear	None
10:45	5	5	100	55.45	0.26	7.23	2.964	20.21	3.51	16.5	72	Clear	None
10:50	5	10	100	55.35	0.40	7.25	3.19	15.64	1	15.8	64.8	Clear	None
10:55	5	15	100	55.35	0.53	7.24	3.272	21.6	0.5	15.5	59.4	Clear	None
11:00	5	20	100	55.35	0.66	7.24	3.323	28.04	0.28	15.4	55.8	Clear	None
11:05	5	25	100	55.35	0.79	7.24	3.351	42.51	0.16	15.3	48.2	Clear	None
11:10	5	30	100	55.35	0.92	7.23	3.351	44.07	0.16	15.3	42.1	Clear	None
11:15	5	35	100	55.35	1.06	7.23	3.348	45.51	0.15	15.3	39.8	Clear	None

Constituent Sampled	Container	Number	Preservative
VOCs	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: no
Well Locked at Departure: no
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-13-43			**Date**	5/14/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	57.0 degrees F and Light Rain. The wind is blowing NE at 10.3 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	68.06	**Total Depth (ft-bmp)**	77.2	**Water Column (ft)**	9.14	**Gallons in Well**	1.49
Purge Start	09:30	**Pump Intake (ft-bmp)**	75	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	10:25	**Volumes Purged**	0.97	**Sample ID**	MW-13-43_051424	**Sampled by**	Billy Cobern
Sample Time	10:25	**Gallons Purged**	1.45	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
09:35	0	0	100	68.45	0.13	6.86	2.833	299.68	7.03	15	142.9	Gray	None
09:40	5	5	100	68.80	0.26	6.86	2.834	286.42	6.99	15	144.3	Gray	None
09:45	5	10	100	69.22	0.40	6.86	2.83	247.56	7.03	14.9	145.9	Gray	None
09:50	5	15	100	69.51	0.53	6.87	2.82	224.86	7.15	14.9	147.9	Gray	None
09:55	5	20	100	69.79	0.66	6.87	2.805	196.85	7.23	14.9	149.5	Gray	None
10:00	5	25	100	70.05	0.79	6.87	2.793	219.68	7.16	14.9	151.9	Gray	None
10:05	5	30	100	70.24	0.92	6.87	2.793	237.97	7.01	14.8	152.6	Gray	None
10:10	5	35	100	70.44	1.06	6.87	2.792	291.55	6.68	15	153.9	Gray	None
10:15	5	40	100	70.65	1.19	6.86	2.793	248.86	6.37	15	155.6	Gray	None
10:20	5	45	100	70.86	1.32	6.86	2.797	251.86	6.17	15.1	156.9	Gray	None
10:25	5	50	100	77.05	1.45	6.85	2.798	245.72	6.11	15.1	157.1	Gray	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments: Didn't meet drawdown requirements

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-13-44			**Date**	5/20/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	4	**Well Casing Material**	Steel
Static Water Level (ft-bmp)	78.86	**Total Depth (ft-bmp)**	118.95	**Water Column (ft)**	40.09	**Gallons in Well**	26.06
Purge Start	14:40	**Pump Intake (ft-bmp)**	116.45	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	15:50	**Volumes Purged**	0.11	**Sample ID**	MW-13-44_052024	**Sampled by**	Donald Richmond
Sample Time	15:40	**Gallons Purged**	2.91	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
15:00	0	0	200	78.86	1.06	8.51	2.01	98	4.31	36.9	106.9	Clear	None
15:10	10	10	200	78.86	1.59	8.03	2.104	134	3.88	38.5	113.3	Clear	None
15:15	5	15	200	78.86	1.85	8.05	2.134	165	3.68	39	107.1	Clear	None
15:20	5	20	200	78.86	2.11	8.01	2.152	165	3.61	39.3	106.9	Clear	None
15:25	5	25	200	78.86	2.38	7.27	2.283	137	2.87	39	93	Clear	None
15:30	5	30	200	78.86	2.64	7.08	1.709	82	1.09	22.8	-87.6	Clear	None
15:35	5	35	200	78.86	2.91	7.11	1.678	387	0.94	22.7	-88.2	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 522	250 mL Glass	2	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-13-45			**Date**	5/14/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	57.0 degrees F and Cloudy. The wind is blowing NE at 8.1 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	66.93	**Total Depth (ft-bmp)**	78.3	**Water Column (ft)**	11.37	**Gallons in Well**	1.85
Purge Start	10:55	**Pump Intake (ft-bmp)**	76	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	11:45	**Volumes Purged**	0.71	**Sample ID**	MW-13-45_051424	**Sampled by**	Billy Cobern
Sample Time	11:45	**Gallons Purged**	1.32	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
11:00	0	0	100	66.99	0.13	6.89	1.428	498.98	8.36	16	-4.1	Clear	None
11:05	5	5	100	67.03	0.26	6.62	1.587	250.11	1.51	14.8	-18.4	Clear	None
11:10	5	10	100	67.03	0.40	6.63	1.562	154.36	0.72	14.5	-24.5	Clear	None
11:15	5	15	100	67.03	0.53	6.65	1.514	118.86	0.65	14.4	-23.3	Clear	None
11:20	5	20	100	67.03	0.66	6.67	1.492	78.03	0.74	14.3	-20.6	Clear	None
11:25	5	25	100	67.03	0.79	6.67	1.487	55.09	0.88	14.3	-19	Clear	None
11:30	5	30	100	67.03	0.92	6.67	1.495	45.95	0.99	14.3	-18.1	Clear	None
11:35	5	35	100	67.03	1.06	6.67	1.502	40.08	1.03	14.2	-17.7	Clear	None
11:40	5	40	100	67.03	1.19	6.67	1.503	36.89	1.04	14.3	-17.6	Clear	None
11:45	5	45	100	67.03	1.32	6.67	1.504	36.58	1.04	14.3	-17.6	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-13-46			**Date**	5/21/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	81.0 degrees F and Clear. The wind is blowing SW at 6.9 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	64.05	**Total Depth (ft-bmp)**	74.65	**Water Column (ft)**	10.60	**Gallons in Well**	1.72
Purge Start	15:55	**Pump Intake (ft-bmp)**	72	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	16:40	**Volumes Purged**	0.69	**Sample ID**	MW-13-46_052124	**Sampled by**	Billy Cobern
Sample Time	16:40	**Gallons Purged**	1.19	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
16:00	0	0	100	64.30	0.13							Clear	None
16:05	5	5	100	64.55	0.26	6.65	2.603	370.89	1.4	20.4	-65.7	Clear	None
16:10	5	10	100	64.75	0.40	6.7	2.604	173.69	1.29	20	-59.8	Clear	None
16:15	5	15	100	64.93	0.53	6.75	2.584	115.05	2.07	19.2	-50.6	Clear	None
16:20	5	20	100	65.07	0.66	6.77	2.593	78.91	2.85	19	-42.7	Clear	None
16:25	5	25	100	65.21	0.79	6.78	2.601	66.57	3.02	19.3	-38.4	Clear	None
16:30	5	30	100	65.28	0.92	6.78	2.603	57.57	3.14	19.4	-36.9	Clear	None
16:35	5	35	100	65.35	1.06	6.78	2.602	59.36	3.15	19.5	-36.9	Clear	None
16:40	5	40	100	65.41	1.19	6.78	2.601	58.37	3.15	19.6	-36.9	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments: Didn't meet drawdown requirements

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-13-47			**Date**	5/24/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	61.0 degrees F and Clear. The wind is blowing undefined at 0.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	65.05	**Total Depth (ft-bmp)**	113.65	**Water Column (ft)**	48.60	**Gallons in Well**	7.90
Purge Start	09:30	**Pump Intake (ft-bmp)**	111	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	10:15	**Volumes Purged**	0.15	**Sample ID**	MW-13-47_052424	**Sampled by**	Billy Cobern
Sample Time	10:15	**Gallons Purged**	1.19	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
09:35	0	0	100	65.36	0.13	7.12	1.713	18.19	4.32	20.5	-35.6	Clear	None
09:40	5	5	100	65.36	0.26	7.02	1.774	39.25	5.02	20	-65.8	Clear	None
09:45	5	10	100	65.36	0.40	6.94	1.808	65.1	3.18	19.6	-78	Clear	None
09:50	5	15	100	65.36	0.53	6.94	1.816	100.25	2.03	19.6	-84.7	Clear	None
09:55	5	20	100	65.36	0.66	6.94	1.828	121.98	2.41	19.7	-90.2	Clear	None
10:00	5	25	100	65.36	0.79	6.94	1.843	164.75	2.98	19.9	-96	Clear	None
10:05	5	30	100	65.36	0.92	6.94	1.864	87.14	2.73	20	-100.1	Clear	None
10:10	5	35	100	65.36	1.06	6.94	1.885	81.23	2.61	20.2	-103.4	Clear	None
10:15	5	40	100	65.36	1.19	6.94	1.895	89.11	2.54	20.1	-105	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 522	250 mL Amber	2	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-13-48			**Date**	5/16/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	56.52	**Total Depth (ft-bmp)**	73.1	**Water Column (ft)**	16.58	**Gallons in Well**	2.69
Purge Start	10:05	**Pump Intake (ft-bmp)**	70.6	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	11:10	**Volumes Purged**	1.08	**Sample ID**	MW-13-48_051624	**Sampled by**	Donald Richmond
Sample Time	11:05	**Gallons Purged**	2.91	**Replicate/ Code No.**	DUP-07_051624	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
10:20	0	0	200	56.52	0.79	6.63	2.261	2.52	0.1	15.6	189.9	Clear	None
10:25	5	5	200	56.52	1.06	6.6	2.323	29	0	15.6	160.7	Clear	None
10:30	5	10	200	56.52	1.32	6.59	2.408	62	0	15.7	-45	Clear	None
10:35	5	15	200	56.52	1.59	6.57	2.46	93	0	15.7	-63.7	Clear	None
10:40	5	20	200	56.52	1.85	6.52	2.654	130	0	16	-79.2	Clear	None
10:45	5	25	200	56.52	2.11	6.52	2.707	193.85	0	15.9	-82.5	Clear	None
10:50	5	30	200	56.52	2.38	6.52	2.794	214	0	16	-84.6	Clear	None
10:55	5	35	200	56.52	2.64	6.52	2.853	115	0	16.4	-85.9	Clear	None
11:00	5	40	200	56.52	2.91	6.52	2.863	133	0	16.3	-86.1	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM,VOCs	40 mL Glass	6	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-13-49			**Date**	5/21/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	79.0 degrees F and Clear. The wind is blowing undefined at 0.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	65.63	**Total Depth (ft-bmp)**	81.65	**Water Column (ft)**	16.02	**Gallons in Well**	2.60
Purge Start	14:30	**Pump Intake (ft-bmp)**	79	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	15:30	**Volumes Purged**	0.61	**Sample ID**	MW-13-49_052124	**Sampled by**	Billy Cobern
Sample Time	15:30	**Gallons Purged**	1.59	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
14:35	0	0	100	65.96	0.13	6.97	0.108	48.94	5.95	25.1	-25.9	Clear	None
14:40	5	5	100	66.26	0.03	7.03	1.938	75.78	5.85	25.3	-30.9	Clear	None
14:45	5	10	100	66.37	0.40	6.86	2.047	84.48	2.81	23	-38	Clear	None
14:50	5	15	100	66.45	0.53	6.86	2.028	71.85	1.14	22.3	-43.3	Clear	None
14:55	5	20	100	66.53	0.66	6.87	2.023	76.56	0.84	22	-45	Clear	None
15:00	5	25	100	66.61	0.79	6.88	2.012	81.02	0.74	22.1	-45.7	Clear	None
15:05	5	30	100	66.69	0.92	6.9	1.993	101.96	0.82	22.9	-44.1	Clear	None
15:10	5	35	100	66.69	1.06	6.9	1.992	117.57	0.88	23	-43.7	Clear	None
15:15	5	40	100	66.69	1.19	6.9	1.977	129.47	0.99	22	-39.5	Clear	None
15:20	5	45	100	66.69	1.32	6.91	1.974	134.78	1.08	22.4	-37.9	Clear	None
15:25	5	50	100	66.69	1.45	6.91	1.975	147.68	1.09	22.4	-37.7	Clear	None
15:30	5	55	100	66.69	1.59	6.91	1.974	121.11	1.11	22.4	-37.6	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments: Didn't meet drawdown requirements. Turbidity didn't stabilize within 60 minutes.

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-13-50			**Date**	5/23/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	4	**Well Casing Material**	Steel
Static Water Level (ft-bmp)	83.70	**Total Depth (ft-bmp)**	109.85	**Water Column (ft)**	26.15	**Gallons in Well**	17.00
Purge Start	09:15	**Pump Intake (ft-bmp)**	107.35	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	10:00	**Volumes Purged**	0.11	**Sample ID**	MW-13-50_052324	**Sampled by**	Donald Richmond
Sample Time	09:55	**Gallons Purged**	1.85	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
09:25	0	0	200	83.70	0.53	6.8	1.376	34.88	4.38	18.8	111.7	Clear	None
09:30	5	5	200	83.70	0.79	6.68	1.209	28.27	0.92	17.2	-24.1	Clear	None
09:35	5	10	200	83.70	1.06	6.7	1.201	38	0.5	17	-59.2	Clear	None
09:40	5	15	200	83.70	1.32	6.73	1.193	41	0.39	17.1	-68.9	Clear	None
09:45	5	20	200	83.70	1.59	6.74	1.196	42.82	0.35	17.3	-73.2	Clear	None
09:50	5	25	200	83.70	1.85	6.75	1.2	43	0.33	17.5	-76.2	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-13-52			**Date**	5/23/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	4	**Well Casing Material**	Steel
Static Water Level (ft-bmp)	70.04	**Total Depth (ft-bmp)**	81.42	**Water Column (ft)**	11.38	**Gallons in Well**	7.40
Purge Start	10:20	**Pump Intake (ft-bmp)**	78.92	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	11:25	**Volumes Purged**	0.39	**Sample ID**	MW-13-52_052324	**Sampled by**	Donald Richmond
Sample Time	11:20	**Gallons Purged**	2.91	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
10:25	0	0	200	70.04	0.26	7.07	1.318	818	2.71	21.8	5.1	Clear	None
10:30	5	5	200	70.04	0.53	6.98	1.246	695	1.02	19.4	-31.9	Clear	None
10:35	5	10	200	70.04	0.79	6.98	1.179	334	0.8	17.8	-41.4	Clear	None
10:40	5	15	200	70.04	1.06	6.96	1.16	119	0.68	17.1	-40.7	Clear	None
10:45	5	20	200	70.04	1.32	6.93	1.158	61	0.5	17.1	-51.1	Clear	None
10:50	5	25	200	70.04	1.59	6.93	1.15	47	0.44	16.9	-64.8	Clear	None
10:55	5	30	200	70.04	1.85	6.93	1.154	76	0.42	17	-73.1	Clear	None
11:00	5	35	200	70.04	2.11	6.93	1.176	87	0.66	17.6	-78	Clear	None
11:05	5	40	200	70.04	2.38	6.93	1.161	30	0.37	17.2	-81	Clear	None
11:10	5	45	200	70.04	2.64	6.92	1.159	37	0.35	17	-82.1	Clear	None
11:15	5	50	200	70.04	2.91	6.92	1.158	31.91	0.38	17.1	-83	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-14-54			**Date**	5/16/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	66.9 degrees F and Clear. The wind is blowing W/SW at 4.7 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	7.82	**Total Depth (ft-bmp)**	19	**Water Column (ft)**	11.18	**Gallons in Well**	1.82
Purge Start	13:19	**Pump Intake (ft-bmp)**	15	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	14:29	**Volumes Purged**	1.02	**Sample ID**	MW-14-54_051424	**Sampled by**	Jackie Schulte
Sample Time	14:25	**Gallons Purged**	1.85	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
13:25	0	0	100	7.99	0.16	8.28	1.278	2.25	0.21	14.1	-71.8	Clear	Medium
13:30	5	5	100	8.01	0.29	8.21	1.2	3.66	0	14	-100	Clear	Medium
13:35	5	10	100	7.98	0.42	8.19	1.156	5.56	0	14.2	-117.6	Clear	Medium
13:40	5	15	100	7.98	0.55	8.18	1.117	7.9	0	14.3	-132.4	Clear	Medium
13:45	5	20	100	7.98	0.69	8.16	1.088	8.9	0	14.3	-145	Clear	Medium
13:50	5	25	100	7.98	0.82	8.14	1.052	10.42	0	14.1	-156.1	Clear	Medium
13:55	5	30	100	7.98	0.95	8.14	1.024	12.88	0	14	-163.6	Clear	Medium
14:00	5	35	100	7.98	1.08	8.13	1.007	17.19	0	13.9	-170.2	Clear	Medium
14:05	5	40	100	7.98	1.22	8.12	0.996	19.75	0	14.6	-176.3	Clear	Medium
14:10	5	45	100	7.98	1.35	8.12	0.991	23.18	0	14.3	-181.1	Clear	Medium
14:15	5	50	100	7.98	1.48	8.11	0.974	28.42	0	14.3	-185.3	Clear	Medium
14:20	5	55	100	7.98	1.61	8.13	0.973	28.84	0	14.8	-189.4	Clear	Medium

Constituent Sampled	Container	Number	Preservative
VOCs	40 mL Glass	3	HCL

Comments: Suspended debris was present in purge water. Well stabilized except for turbidity. Sample taken after 60 minutes of purging.

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location:

Condition of Well: Good condition

Well Completion: Stick-up

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-14-55			**Date**	5/16/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	73.9 degrees F and Clear. The wind is blowing undefined at 0.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	14.20	**Total Depth (ft-bmp)**	18	**Water Column (ft)**	3.80	**Gallons in Well**	0.62
Purge Start	14:45	**Pump Intake (ft-bmp)**	16	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	15:48	**Volumes Purged**	2.68	**Sample ID**	MW-14-55_051524	**Sampled by**	Jackie Schulte
Sample Time	15:45	**Gallons Purged**	1.66	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
14:50	0	0	100	14.34	0.13	7.38	0.667	3.47	7.33	15.6	45	Clear	Mild
14:55	5	5	100	14.41	0.26	7.26	0.683	2.4	7.26	12.9	66.5	Clear	Mild
15:00	5	10	100	14.46	0.40	7.23	0.696	2.33	7.18	12.4	78.5	Clear	Mild
15:05	5	15	100	14.46	0.53	7.21	0.7	2.09	7.14	12.3	89.1	Clear	Mild
15:10	5	20	100	14.46	0.66	7.2	0.7	2.48	7.11	12.5	97.1	Clear	Mild
15:15	5	25	100	14.46	0.79	7.19	0.7	2.78	7.07	12.2	105.8	Clear	Mild
15:20	5	30	100	14.46	0.92	7.18	0.685	3.33	7.09	12.4	113	Clear	Mild
15:25	5	35	100	14.46	1.06	7.17	0.703	3.82	7.08	12.5	118.8	Clear	Mild
15:30	5	40	100	14.46	1.19	7.17	0.704	4.48	6.97	12.8	124.4	Clear	Mild
15:35	5	45	100	14.46	1.32	7.17	0.705	4.36	6.94	12.7	129.9	Clear	Mild
15:40	5	50	100	14.46	1.45	7.17	0.699	5.15	7.04	12.7	133.7	Clear	Mild

Constituent Sampled	Container	Number	Preservative
VOCs	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location:

Condition of Well: Good condition

Well Completion: Stick-up

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-14-57			**Date**	5/17/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	63.0 degrees F and Partly Cloudy. The wind is blowing S at 4.7 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	9.68	**Total Depth (ft-bmp)**	21.36	**Water Column (ft)**	11.68	**Gallons in Well**	1.90
Purge Start	08:50	**Pump Intake (ft-bmp)**	19	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	10:00	**Volumes Purged**	1.47	**Sample ID**	MW-14-57_051724	**Sampled by**	Ellen Redner
Sample Time	09:55	**Gallons Purged**	2.8	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate gal/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
08:55	0	0	0.04	9.75	0.2	7.31	1.067	76.6	4.88	13.4	158.9	Clear	None
09:00	5	5	0.04	9.75	0.4	7.38	1.058	73.1	4.86	13.4	155.1	Clear	None
09:05	5	10	0.04	9.75	0.6	7.39	1.049	86.59	4.78	13.4	154.6	Clear	None
09:10	5	15	0.04	9.75	0.8	7.36	1.036	77.2	4.73	13.5	155.4	Clear	None
09:15	5	20	0.04	9.75	1	7.35	1.028	65.4	4.56	13.4	155.5	Clear	None
09:20	5	25	0.04	9.76	9.75	7.36	1.022	42.7	4.38	13.5	155.1	Clear	None
09:25	5	30	0.04	9.76	1.4	7.37	1.017	66.5	4.33	13.5	154.5	Clear	None
09:30	5	35	0.04	9.77	1.6	7.36	1.016	54.9	4.3	13.6	154.6	Clear	None
09:35	5	40	0.04	9.78	1.8	7.35	1.014	47.3	4.29	13.6	155.4	Clear	None
09:40	5	45	0.04	9.79	2	7.35	1.015	36.9	4.31	13.8	121.2	Clear	None
09:45	5	50	0.04	9.79	2.2	7.35	1.012	27.3	4.14	14	133.8	Clear	None
09:50	5	55	0.04	9.80	2.4	7.36	1.01	27	4.14	14	139	Clear	None
09:55	5	60	0.04	9.80	2.6	7.36	1.011	28.9	4.09	14	140.6	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location:

Condition of Well: Good condition

Well Completion: Stick-up

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-14-59			**Date**	5/17/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	63.0 degrees F and Partly Cloudy. The wind is blowing S at 4.7 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	5.19	**Total Depth (ft-bmp)**	17	**Water Column (ft)**	11.81	**Gallons in Well**	1.92
Purge Start	08:44	**Pump Intake (ft-bmp)**	14.5	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	10:15	**Volumes Purged**	1.24	**Sample ID**	MW-14-59_051724	**Sampled by**	Jackie Schulte
Sample Time	09:45	**Gallons Purged**	2.38	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
08:50	0	0	100	5.57	0.16	7.22	0.733	2.82	1.05	16	242.7	Clear	None
08:55	5	5	100	5.36	0.29	7.16	0.725	2.73	0.69	18.3	190.5	Clear	None
09:00	5	10	100	5.55	0.42	7.18	0.734	2.55	0.37	16	147.6	Clear	None
09:05	5	15	100	5.55	0.55	7.16	0.733	2.42	0.15	16.1	111	Clear	None
09:10	5	20	100	5.60	0.69	7.16	0.733	2.54	0.06	15.5	83	Clear	None
09:15	5	25	100	5.60	0.82	7.15	0.732	3.62	0.04	15.7	59.6	Clear	None
09:20	5	30	100	5.60	0.95	7.13	0.738	3.79	0	15.5	45.2	Clear	None
09:25	5	35	100	5.60	1.08	7.12	0.737	5.54	0.03	17.2	30.5	Clear	None
09:30	5	40	100	5.60	1.22	7.1	0.752	6.26	0.08	16.7	22.8	Clear	None
09:35	5	45	100	5.60	1.35	7.12	0.753	6.89	0.03	15.4	15.3	Clear	None
09:40	5	50	100	5.60	1.48	7.1	0.752	7.95	0.01	16	8.3	Clear	None
09:45	5	55	100	5.60	1.61	7.1	0.76	8.44	0	15.6	3.4	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM,VOCs	40 mL Glass	3	HCL
PFAS	250mL HDPE Plastic	2	None
SVOCs	1L Amber	2	None

Comments: Well did not stabilize after 60 minute purge.

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-14-60			**Date**	5/17/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	68.0 degrees F and Cloudy. The wind is blowing N at 10.3 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	9.09	**Total Depth (ft-bmp)**	20	**Water Column (ft)**	10.91	**Gallons in Well**	1.77
Purge Start	10:35	**Pump Intake (ft-bmp)**	17.5	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	12:05	**Volumes Purged**	1.34	**Sample ID**	MW-14-60_051724	**Sampled by**	Jackie Schulte
Sample Time	11:40	**Gallons Purged**	2.38	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
10:40	0	0	100	9.11	0.13	7.53	1.235	2.21	0.49	15.1	62.5	Clear	None
10:45	5	5	100	9.11	0.26	7.48	1.237	2.68	0.19	15.4	10.4	Clear	None
10:50	5	10	100	9.11	0.40	7.46	1.237	3.47	0.08	14.9	-17.4	Clear	None
10:55	5	15	100	9.11	0.53	7.45	1.235	5.34	0	14.8	-35.6	Clear	None
11:00	5	20	100	9.11	0.66	7.44	1.235	8.88	0	14.7	-47.4	Clear	None
11:05	5	25	100	9.11	0.79	7.44	1.236	11.99	0	14.7	-56.8	Clear	None
11:10	5	30	100	9.11	0.92	7.43	1.235	14.37	0	15.3	-63.7	Clear	None
11:15	5	35	100	9.11	1.06	7.43	1.236	15.1	0	15.7	-69.3	Clear	None
11:20	5	40	100	9.11	1.19	7.42	1.245	22.47	0.12	16.1	-74	Clear	None
11:25	5	45	100	9.11	1.32	7.43	1.234	28.38	0	15.6	-77.9	Clear	None
11:30	5	50	100	9.11	1.45	7.42	1.236	30.7	0	16.1	-82.1	Clear	None
11:35	5	55	100	9.11	1.59	7.41	1.233	28.64	0	16	-84.2	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM,VOCs	40 mL Glass	3	HCL
PFAS	250mL HDPE Plastic	2	None
SVOCs	1L Amber	2	None

Comments: Temperature variance is due to intermittent direct sunlight due to cloudy conditions. Well did not stabilize after 60 minute purge.

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-14-61			**Date**	5/15/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	54.0 degrees F and Mostly Clear. The wind is blowing N/NE at 10.3 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	68.01	**Total Depth (ft-bmp)**	77.32	**Water Column (ft)**	9.31	**Gallons in Well**	1.51
Purge Start	09:50	**Pump Intake (ft-bmp)**	74.83	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	11:10	**Volumes Purged**	2.80	**Sample ID**	MW-14-61_051524	**Sampled by**	Austin Westhuis
Sample Time	10:35	**Gallons Purged**	4.23	**Replicate/ Code No.**	DUP-02_051524	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
09:55	0	0	200	68.08	0.26	6.95	3.249	113.6	2.45	14.9	199.3	Clear	None
10:00	5	5	200	68.08	0.53	6.94	3.247	67.47	1.86	14.8	196.7	Clear	None
10:05	5	10	200	68.08	0.79	6.94	3.239	43.05	1.35	14.8	193	Clear	None
10:10	5	15	200	68.08	1.06	6.93	3.236	38.77	0.91	14.9	189.3	Clear	None
10:15	5	20	200	68.08	1.32	6.92	3.241	31.58	0.77	14.9	187.3	Clear	None
10:20	5	25	200	68.08	1.59	6.92	3.236	30.79	0.65	15	186.3	Clear	None
10:25	5	30	200	68.08	1.85	6.92	3.236	30.44	0.58	15	184.3	Clear	None
10:30	5	35	200	68.08	2.11	6.92	3.234	30.09	0.56	15	182.3	Clear	None
10:35	5	40	200	68.08	2.38	6.91	3.237	28.11	0.53	15	180.9	Clear	None

Constituent Sampled	Container	Number	Preservative
SVOC - 8270 SIMS	1L Amber	4	None
PFAS - Method 537 mod.	250mL HDPE Plastic	4	None
1,4-Dioxane 8270D SIM,VOCs	40 mL Glass	6	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-14-62			**Date**	5/15/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	69.1 degrees F and Clear. The wind is blowing NE at 12.8 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	3.68	**Total Depth (ft-bmp)**	19.65	**Water Column (ft)**	15.97	**Gallons in Well**	2.59
Purge Start	16:50	**Pump Intake (ft-bmp)**	17	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	17:40	**Volumes Purged**	0.51	**Sample ID**	MW-14-62_051525	**Sampled by**	Billy Cobern
Sample Time	17:40	**Gallons Purged**	1.32	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
16:55	0	0	100	3.76	0.13	11.4	0.492	5.57	0.48	16.6	-224.3	Clear	None
17:00	5	5	100	3.76	0.26	11.41	0.5	6.36	0.33	16.6	-238.9	Clear	None
17:05	5	10	100	3.76	0.40	11.41	0.502	6.18	0.3	16.6	-243.8	Clear	None
17:10	5	15	100	3.76	0.53	11.42	0.516	9.24	0.11	16.4	-278.4	Clear	None
17:15	5	20	100	3.76	0.66	11.48	0.574	15.66	0.25	16.7	-318.3	Clear	None
17:20	5	25	100	3.76	0.79	11.5	0.598	14.35	0.27	16.8	-339.4	Clear	None
17:25	5	30	100	3.76	0.92	11.5	0.598	12.64	0.29	16.9	-341.8	Clear	None
17:30	5	35	100	3.76	1.06	11.5	0.599	10.21	0.27	16.9	-343.7	Clear	None
17:35	5	40	100	3.76	1.19	11.51	0.602	9.86	0.26	16.9	-345	Clear	None
17:40	5	45	100	3.76	1.32	11.5	0.602	9.76	0.25	16.9	-346.8	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM,VOCs	40 mL Glass	3	HCL
PFAS	250 mL Plastic	2	None
SVOCs	1L Amber	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Well Locked at Arrival: yes
Condition of Well: Good condition
Well Locked at Departure: yes
Well Completion: Stick-up
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-14-63			**Date**	5/16/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	73.9 degrees F and Clear. The wind is blowing undefined at 0.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	67.94	**Total Depth (ft-bmp)**	76.75	**Water Column (ft)**	8.81	**Gallons in Well**	1.43
Purge Start	14:50	**Pump Intake (ft-bmp)**	74	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	15:50	**Volumes Purged**	1.11	**Sample ID**	MW-14-63_051624	**Sampled by**	Billy Cobern
Sample Time	15:50	**Gallons Purged**	1.59	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
14:55	0	0	100	68.25	0.13	7.01	1.296	1126.67	4.86	18.7	-14.7	Clear	None
15:00	5	5	100	68.42	0.26	6.92	1.277	775.39	1.48	19.2	-54	Clear	None
15:05	5	10	100	68.57	0.40	6.89	1.278	541.47	0.7	18.5	-66.5	Clear	None
15:10	5	15	100	68.73	0.53	6.89	1.288	622.56	0.68	19.1	-70.8	Clear	None
15:15	5	20	100	68.89	0.66	6.89	1.281	527.47	2.24	18.8	-62.4	Clear	None
15:20	5	25	100	68.89	0.79	6.88	1.281	365.47	0.8	18.4	-68.5	Clear	None
15:25	5	30	100	69.05	0.92	6.88	1.281	282.68	0.6	18.7	-71.3	Clear	None
15:30	5	35	100	69.21	1.06	6.88	1.275	228.32	0.5	18.1	-72.7	Clear	None
15:35	5	40	100	69.29	1.19	6.88	1.276	174.47	0.42	18.1	-73.7	Clear	None
15:40	5	45	100	69.29	1.32	6.88	1.277	170.36	0.39	18.2	-75	Clear	None
15:45	5	50	100	69.37	1.45	6.88	1.276	148.68	0.39	18.2	-77.7	Clear	None
15:50	5	55	100	69.45	1.59	6.88	1.277	123.93	0.39	18.3	-75.2	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments: Didn't meet drawdown requirements. Turbidity didn't stabilize within 60 minutes.

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-14-64			**Date**	5/21/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	70.0 degrees F and . The wind is blowing undefined at 0.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	69.89	**Total Depth (ft-bmp)**	106.3	**Water Column (ft)**	36.41	**Gallons in Well**	5.92
Purge Start	13:00	**Pump Intake (ft-bmp)**	104	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	14:00	**Volumes Purged**	0.27	**Sample ID**	MW-14-64_052124	**Sampled by**	Billy Cobern
Sample Time	14:00	**Gallons Purged**	1.59	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
13:05	0	0	100	70.21	0.13	6.98	1.668	34.64	2.12	21.8	-78.4	Clear	None
13:10	5	5	100	70.21	0.26	6.98	1.671	70.73	0.99	22.4	-84.2	Clear	None
13:15	5	10	100	70.21	0.40	6.97	1.678	13.51	0.68	24.7	-91.9	Clear	None
13:20	5	15	100	70.21	0.53	6.96	1.652	40.53	0.7	27.3	-95.7	Clear	None
13:25	5	20	100	70.21	0.66	6.94	1.696	47.65	0.6	28.4	-96.8	Clear	None
13:30	5	25	100	70.21	0.79	6.93	1.706	26.53	0.57	27.3	-97.1	Clear	None
13:35	5	30	100	70.21	0.92	6.95	1.694	11.55	0.47	25.1	-94.5	Clear	None
13:40	5	35	100	70.21	1.06	6.95	1.688	35.98	0.34	24.3	-94.8	Clear	None
13:45	5	40	100	70.21	1.19	6.96	1.681	45.04	0.28	23.8	-95.2	Clear	None
13:50	5	45	100	70.21	1.32	6.96	1.675	22.78	0.26	24.7	-96.7	Clear	None
13:55	5	50	100	70.21	1.45	6.96	1.682	22.65	0.25	24.7	-96.6	Clear	None
14:00	5	55	100	70.21	1.59	6.96	1.686	33.24	0.25	24.7	-96.6	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments: Turbidity didn't stabilize within 60 minutes

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Well Locked at Arrival: yes
Condition of Well: Good condition
Well Locked at Departure: yes
Well Completion: Stick-up
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-14-66			**Date**	5/23/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	73.9 degrees F and Clear. The wind is blowing W at 12.8 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	5.40	**Total Depth (ft-bmp)**	15	**Water Column (ft)**	9.60	**Gallons in Well**	1.56
Purge Start	13:50	**Pump Intake (ft-bmp)**	14	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	14:00	**Volumes Purged**	1.19	**Sample ID**	MW-14-66_052324	**Sampled by**	Jackie Schulte
Sample Time	14:50	**Gallons Purged**	1.85	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
13:55	0	0	100	6.07	0.13	7.67	0.833	3.88	0.66	17.7	34	Clear	None
14:00	5	5	100	6.11	0.26	7.6	0.833	6.53	0.44	19.6	18.7	Clear	None
14:05	5	10	100	6.11	0.40	7.57	0.831	12.06	0.41	21	11.2	Clear	None
14:10	5	15	100	6.18	0.53	7.59	0.836	15.2	0.27	17.9	0.9	Clear	None
14:15	5	20	100	6.35	0.66	7.58	0.829	19	0.09	17.1	-16.6	Clear	None
14:20	5	25	100	6.43	0.79	7.57	0.828	30.78	0.06	17.1	-32.5	Clear	None
14:25	5	30	100	6.56	0.92	7.58	0.826	48.22	0.04	17	-41.4	Clear	None
14:30	5	35	100	6.59	1.06	7.57	0.829	67	0	16.5	-48.9	Clear	None
14:35	5	40	100	6.62	1.19	7.57	0.832	74.99	0	16.4	-55	Clear	None
14:40	5	45	100	6.70	1.32	7.56	0.83	51.15	0	16.1	-60.9	Clear	None
14:45	5	50	100	6.77	1.45	7.55	0.829	21.66	0	16.2	-64.5	Clear	None
14:50	5	55	100	6.81	1.59	7.55	0.828	52.48	0	15.9	-67.2	Clear	None

Constituent Sampled	Container	Number	Preservative
Dissolved Metals,Total Metals	125 mL Plastic	2	HNO3

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-14-67			**Date**	5/23/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	75.0 degrees F and Clear. The wind is blowing W/SW at 17.2 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	5.84	**Total Depth (ft-bmp)**	20.84	**Water Column (ft)**	15.00	**Gallons in Well**	2.44
Purge Start	14:40	**Pump Intake (ft-bmp)**	18.34	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	15:20	**Volumes Purged**	0.86	**Sample ID**	MW-14-67_052324	**Sampled by**	Austin Westhuis
Sample Time	15:15	**Gallons Purged**	2.11	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
14:45	0	0	200	6.45	0.26	7.37	1.062	32.3	0.33	13.4	141.5	Clear	None
14:50	5	5	200	6.45	0.53	7.34	1.06	12.86	0.19	13.2	143.9	Clear	None
14:55	5	10	200	6.45	0.79	7.33	1.061	6.88	0.15	13.1	144.4	Clear	None
15:00	5	15	200	6.45	1.06	7.31	1.067	4.69	0.09	13.3	143.8	Clear	None
15:05	5	20	200	6.45	1.32	7.3	1.067	4.11	0.08	13.2	141.7	Clear	None
15:10	5	25	200	6.45	1.59	7.29	1.071	3.96	0.08	13	140.1	Clear	None
15:15	5	30	200	6.45	1.85	7.29	1.076	3.73	0.08	13.1	138.5	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS - Method 537 mod.	250mL HDPE Plastic	2	None
Total Metals	125 mL Plastic	1	HNO3

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-14-70			**Date**	5/22/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	77.0 degrees F and Mostly Clear.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	10.81	**Total Depth (ft-bmp)**	23.05	**Water Column (ft)**	12.24	**Gallons in Well**	1.99
Purge Start	13:47	**Pump Intake (ft-bmp)**	22	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	14:55	**Volumes Purged**	1.26	**Sample ID**	MW-14-70_52224	**Sampled by**	Jarrett Humpula
Sample Time	14:55	**Gallons Purged**	2.5	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
13:50	0	0	150	10.81	0.12	7.26	1.228	62.52	2.35	17.3	229.1	Clear	None
13:55	5	5	150	10.89	0.32	7.25	1.284	24.02	0.81	19.8	214.5	Clear	None
14:00	5	10	150	10.89	0.52	7.28	1.335	51.34	0.61	22.1	138.3	Clear	None
14:10	10	20	150	10.89	0.91	7.29	1.421	47.32	0.44	22.2	78.2	Clear	None
14:15	5	25	150	10.89	1.11	7.23	1.232	31.69	0.44	19.4	143.2	Clear	None
14:20	5	30	150	10.89	1.31	7.23	1.284	26.89	0.33	21	137.3	Clear	None
14:25	5	35	150	10.89	1.51	7.21	1.289	25.8	0.33	21.2	136.8	Clear	None
14:30	5	40	150	10.89	1.70	7.19	1.34	29.3	0.35	22.9	131.1	Clear	None
14:35	5	45	150	10.89	1.90	7.18	1.399	18.34	0.33	24.8	122.9	Clear	None
14:40	5	50	150	10.89	2.10	7.16	1.443	20.73	0.35	26.2	116.8	Clear	None
14:45	5	55	150	10.89	2.30	7.15	1.492	21.05	0.37	27.8	111.5	Clear	None
14:50	5	60	150	10.89	2.50	7.14	1.522	27.64	0.4	28.8	109.7	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Well Locked at Arrival: yes
Condition of Well: Good condition
Well Locked at Departure: yes
Well Completion: Stick-up
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-15-71			**Date**	5/21/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	66.0 degrees F and Cloudy. The wind is blowing undefined at 0.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	66.58	**Total Depth (ft-bmp)**	119.1	**Water Column (ft)**	52.52	**Gallons in Well**	8.53
Purge Start	11:40	**Pump Intake (ft-bmp)**	116.5	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	12:35	**Volumes Purged**	0.17	**Sample ID**	MW-15-71_052124	**Sampled by**	Billy Cobern
Sample Time	12:35	**Gallons Purged**	1.45	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
11:45	0	0	100	66.65	0.13	7.16	1.644	17.11	4.46	18	37.1	Clear	None
11:50	5	5	100	66.65	0.26	7.04	1.48	15.73	3.14	17.7	19.9	Clear	None
11:55	5	10	100	66.65	0.40	7.03	1.461	8.46	3.71	17	7.6	Clear	None
12:00	5	15	100	66.65	0.53	7.02	1.448	15.21	1.79	16.7	-27.8	Clear	None
12:05	5	20	100	66.65	0.66	7.03	1.448	26.07	0.68	16.9	-57.6	Clear	None
12:10	5	25	100	66.65	0.79	7.04	1.449	41.45	0.41	16.7	-69.6	Clear	None
12:15	5	30	100	66.65	0.92	7.05	1.447	59.06	0.29	17.1	-78	Clear	None
12:20	5	35	100	66.65	1.06	7.05	1.448	60.15	0.26	17.3	-80.5	Clear	None
12:25	5	40	100	66.65	1.19	7.05	1.447	76.67	0.23	17.2	-82.2	Clear	None
12:30	5	45	100	66.65	1.32	7.05	1.45	80.14	0.22	17	-82.5	Clear	None
12:35	5	50	100	66.65	1.45	7.05	1.45	82.43	0.22	17	-82.6	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-15-72			**Date**	5/15/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	60.1 degrees F and Mostly Clear. The wind is blowing NE at 9.2 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	56.42	**Total Depth (ft-bmp)**	70.27	**Water Column (ft)**	13.85	**Gallons in Well**	2.25
Purge Start	11:30	**Pump Intake (ft-bmp)**	67.87	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	12:30	**Volumes Purged**	1.41	**Sample ID**	MW-15-72_051524	**Sampled by**	Austin Westhuis
Sample Time	12:15	**Gallons Purged**	3.17	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
11:35	0	0	200	58.00	0.26	6.84	1.506	141.49	3.99	15.4	24.1	Clear	None
11:40	5	5	200	58.09	0.53	6.89	1.52	76.34	5.68	15.5	22.5	Clear	None
11:45	5	10	200	58.09	0.79	6.91	1.552	49.14	6.5	15.4	13.9	Clear	None
11:50	5	15	200	58.09	1.06	6.91	1.559	44.72	6.29	15.4	-2.9	Clear	None
11:55	5	20	200	58.09	1.32	6.9	1.588	39.42	6.15	15.4	-15.9	Clear	None
12:00	5	25	200	58.09	1.59	6.91	1.602	36.11	6.23	15.5	-27.7	Clear	None
12:05	5	30	200	58.09	1.85	6.93	1.618	30.95	6.29	15.6	-30.5	Clear	None
12:10	5	35	200	58.09	2.11	6.95	1.623	29.11	6.33	15.6	-31.7	Clear	None
12:15	5	40	200	58.09	2.38	6.97	1.627	28.36	6.38	15.6	-31.9	Clear	None

Constituent Sampled	Container	Number	Preservative
SVOC - 8270 SIMS	1L Amber	2	HCL
PFAS - Method 537 mod.	250mL HDPE Plastic	2	None
1,4-Dioxane 8270D SIM,VOCs	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-16-74			**Date**	5/14/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	54.0 degrees F and Fog/Mist. The wind is blowing E/NE at 8.1 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	66.45	**Total Depth (ft-bmp)**	75.08	**Water Column (ft)**	8.63	**Gallons in Well**	1.40
Purge Start	09:45	**Pump Intake (ft-bmp)**	73.5	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	11:35	**Volumes Purged**	3.21	**Sample ID**	MW-16-74_051424	**Sampled by**	Jarrett Humpula
Sample Time	11:30	**Gallons Purged**	4.5	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
09:51	0	0	150	66.60	0.20	6.68	2.311	481.2	2.73	14.4	-2.7	Clear	None
09:56	5	5	150	66.62	0.40	6.69	2.295	163.65	1.54	14.3	-9.7	Clear	None
10:01	5	10	150	66.62	0.63	6.69	2.298	89.17	1.24	14.3	-14.6	Clear	None
10:05	4	14	150	66.62	0.79	6.69	2.303	62.13	1.07	14.3	-19.5	Clear	None
10:11	6	20	150	66.62	10.30	6.68	2.307	52.51	0.84	14.3	-23.6	Clear	None
10:16	5	25	150	66.62	1.23	6.68	2.311	54.95	0.78	14.4	-25.3	Clear	None
10:21	5	30	150	66.62	1.43	6.68	2.314	53.63	0.61	14.4	-27.7	Clear	None
10:26	5	35	150	66.62	1.62	6.68	2.317	50.28	0.51	14.4	-29.9	Clear	None
10:31	5	40	150	66.62	1.82	6.67	2.317	52.35	0.42	14.4	-30.6	Clear	None
10:36	5	45	150	66.62	2.02	6.67	2.318	54.09	0.44	14.4	-30.7	Clear	None
10:41	5	50	150	66.62	2.22	6.67	2.317	55.07	0.33	14.4	-30.9	Clear	None
10:46	5	55	150	66.62	2.42	6.67	2.32	55.74	0.3	14.3	-30.6	Clear	None
10:51	5	60	150	66.62	2.62	6.72	2.316	54.88	0.23	14.4	-30.6	Clear	None
10:56	5	65	150	66.62	2.81	6.67	2.318	65.97	0.19	14.4	-30.4	Clear	None
11:01	5	70	150	66.62	3.01	6.67	2.316	59.02	0.14	14.3	-30.5	Clear	None
11:06	5	75	150	66.62	3.21	6.67	2.316	58.76	0.12	14.3	-30.7	Clear	None
11:11	5	80	150	66.62	3.41	6.67	2.315	55.94	0.09	14.3	-30.7	Clear	None
11:16	5	85	150	66.62	3.61	6.67	2.313	56.78	0.06	14.3	-31	Clear	None
11:21	5	90	150	66.62	3.80	6.67	2.312	56.02	0.05	14.3	-30.8	Clear	None
11:26	5	95	150	66.62	4.00	6.67	2.311	59.54	0.04	14.3	-30.7	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Well Locked at Arrival: yes
Condition of Well: Good condition
Well Locked at Departure: yes
Well Completion: Stick-up
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-16-75			**Date**	5/14/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	57.0 degrees F and Cloudy. The wind is blowing NE at 10.3 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	62.25	**Total Depth (ft-bmp)**	74.1	**Water Column (ft)**	11.85	**Gallons in Well**	1.93
Purge Start	15:50	**Pump Intake (ft-bmp)**	72	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	16:45	**Volumes Purged**	0.75	**Sample ID**	MW-16-75_051424	**Sampled by**	Billy Cobern
Sample Time	16:45	**Gallons Purged**	1.45	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
15:55	0	0	100	62.75	0.13	7	1.933	53.47	1.52	15.2	-77.1	Clear	None
16:00	5	5	100	62.85	0.26	7.01	1.92	64.85	0.7	15.6	-79.8	Clear	None
16:05	5	10	100	62.89	0.40	6.99	1.939	110.96	0.36	16.2	-78.6	Clear	None
16:10	5	15	100	62.94	0.53	6.99	1.955	101.95	0.3	16.2	-78	Clear	None
16:15	5	20	100	62.99	0.66	6.99	1.955	104.55	0.28	16.5	-77.6	Clear	None
16:20	5	25	100	63.05	0.79	6.99	1.949	193.11	0.3	17.3	-77.1	Clear	None
16:25	5	30	100	63.11	0.92	6.98	1.954	111.95	0.34	17.9	-76.3	Clear	None
16:30	5	35	100	63.16	1.06	6.98	1.958	100.03	0.36	18.1	-75.1	Clear	None
16:35	5	40	100	63.20	1.19	6.98	1.962	103.46	0.41	17.9	-73.3	Clear	None
16:40	5	45	100	63.25	1.32	6.98	1.965	104.96	0.42	17.7	-73.1	Clear	None
16:45	5	50	100	63.29	1.45	6.98	1.963	103.75	0.42	17.8	-72.8	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments: Didn't meet drawdown requirements

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-16-76			**Date**	5/16/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	66.9 degrees F and Clear. The wind is blowing W/SW at 4.7 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	65.73	**Total Depth (ft-bmp)**	82.1	**Water Column (ft)**	16.37	**Gallons in Well**	2.66
Purge Start	13:25	**Pump Intake (ft-bmp)**	79.5	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	14:20	**Volumes Purged**	0.55	**Sample ID**	MW-16-76_051624	**Sampled by**	Billy Cobern
Sample Time	14:20	**Gallons Purged**	1.45	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
13:30	0	0	100	66.29	0.13	6.99	2.941	30.36	3.94	15.1	83	Clear	None
13:35	5	5	100	66.58	0.26	6.97	2.927	33.86	3.51	15.1	68.4	Clear	None
13:40	5	10	100	66.75	0.40	6.96	2.896	34.32	1.85	16	13.6	Clear	None
13:45	5	15	100	66.89	0.53	6.96	2.867	41.58	1.02	16.8	-25.8	Clear	None
13:50	5	20	100	67.12	0.66	6.95	2.88	49.38	0.95	17.3	-34.8	Clear	None
13:55	5	25	100	67.37	0.79	6.93	2.921	60.76	0.83	17.5	-40.7	Clear	None
14:00	5	30	100	67.61	0.92	6.93	2.959	66.81	0.74	17.8	-43.6	Clear	None
14:05	5	35	100	67.87	1.06	6.92	3.03	79.99	0.68	17.3	-45.3	Clear	None
14:10	5	40	100	68.07	1.19	6.91	3.134	104.58	0.55	17.5	-48.1	Clear	None
14:15	5	45	100	68.34	1.32	6.91	3.137	106.79	0.55	17.4	-48.2	Clear	None
14:20	5	50	100	68.61	1.45	6.91	3.161	114.96	0.54	17.3	-48.6	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments: Didn't meet drawdown requirements

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-16-77			**Date**	5/14/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	57.0 degrees F and Cloudy. The wind is blowing NE at 8.1 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	61.33	**Total Depth (ft-bmp)**	75.2	**Water Column (ft)**	13.87	**Gallons in Well**	2.25
Purge Start	12:10	**Pump Intake (ft-bmp)**	73.5	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	13:20	**Volumes Purged**	1.11	**Sample ID**	MW-16-77_051424	**Sampled by**	Jarrett Humpula
Sample Time	13:15	**Gallons Purged**	2.5	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
12:12	0	0	150	61.33	0.08	6.92	2.934	589.64	6.92	13.9	-2.8	Clear	None
12:17	5	5	150	61.33	0.28	6.8	3.127	278.07	3.25	13.2	-24	Clear	None
12:22	5	10	150	61.33	0.48	6.79	3.118	59.13	0.72	12.9	-37.3	Clear	None
12:27	5	15	150	61.33	0.67	6.79	3.08	34.5	0.51	12.9	-40.2	Clear	None
12:32	5	20	150	61.33	0.87	6.81	3.037	31.16	0.51	12.9	-40.8	Clear	None
12:37	5	25	150	61.33	1.07	6.81	3.03	30.06	0.55	12.8	-40.6	Clear	None
12:42	5	30	150	61.33	1.27	6.82	3.012	24.41	0.65	12.9	-39.4	Clear	None
12:47	5	35	150	61.33	1.47	6.83	2.999	20.79	0.82	12.8	-36.9	Clear	None
12:52	5	40	150	61.33	1.66	6.84	2.986	19.44	0.97	12.9	-33.9	Clear	None
12:57	5	45	150	61.33	1.86	6.84	2.982	24.2	1.11	12.9	25.41	Clear	None
13:02	5	50	150	61.33	2.06	6.84	2.985	24.32	1.21	12.9	-29.3	Clear	None
13:07	5	55	150	61.33	2.26	6.85	2.984	23.3	1.23	13.1	-28.9	Clear	None
13:12	5	60	150	61.33	2.46	6.85	2.983	22.78	1.29	13.5	-28.4	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-16-78			**Date**	5/14/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	54.0 degrees F and Cloudy. The wind is blowing N/NE at 9.2 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	65.34	**Total Depth (ft-bmp)**	77.22	**Water Column (ft)**	11.88	**Gallons in Well**	1.93
Purge Start	13:52	**Pump Intake (ft-bmp)**	76	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	15:02	**Volumes Purged**	1.55	**Sample ID**	MW-16-78_051424	**Sampled by**	Jarrett Humpula
Sample Time	15:00	**Gallons Purged**	3.0	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
13:54	0	0	150	65.34	0.08	7.31	1.544	235.76	4.89	14.8	-39.6	Clear	None
13:59	5	5	150	65.34	0.28	7.04	1.561	126.62	0.52	14	-61.6	Clear	None
14:04	5	10	150	65.34	0.48	7	1.557	41.85	0.03	13.8	-67.7	Clear	None
14:09	5	15	150	65.34	0.67	7	1.556	31.78	0.02	13.8	-68.1	Clear	None
14:14	5	20	150	65.34	0.87	6.99	1.559	28.37	0	13.8	-69.4	Clear	None
14:19	5	25	150	65.34	1.07	6.99	1.56	23.71	0	13.7	-70.5	Clear	None
14:24	5	30	150	65.34	1.27	6.98	1.563	19.97	0	13.7	-71.4	Clear	None
14:29	5	35	150	65.34	1.47	6.98	1.565	16.93	0	13.7	-72.2	Clear	None
14:34	5	40	150	65.34	1.66	6.98	1.562	18.14	0	13.7	-72.9	Clear	None
14:39	5	45	150	65.34	1.86	6.98	1.559	20.57	0	13.7	-73.6	Clear	None
14:44	5	50	150	65.34	2.06	6.98	1.559	21.17	0	13.8	-74.2	Clear	None
14:49	5	55	150	65.34	2.26	6.98	1.556	23.69	0	13.8	-74.8	Clear	None
14:54	5	60	150	65.34	2.46	6.98	1.569	28.57	0	13.8	28.22	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments: Turbidity and DO not stable

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-16-81			**Date**	5/15/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	64.0 degrees F and Clear. The wind is blowing N/NE at 10.3 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	62.50	**Total Depth (ft-bmp)**	77.23	**Water Column (ft)**	14.73	**Gallons in Well**	2.39
Purge Start	13:00	**Pump Intake (ft-bmp)**	74.83	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	13:45	**Volumes Purged**	1.00	**Sample ID**	MW-16-81_051524	**Sampled by**	Austin Westhuis
Sample Time	13:40	**Gallons Purged**	2.38	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
13:05	0	0	200	63.35	0.26	6.89	3.008	58.25	5.31	16.4	90.1	Clear	None
13:10	5	5	200	64.60	0.53	6.97	3.007	52.54	7.08	16.2	96.2	Clear	None
13:15	5	10	200	64.81	0.79	7.05	3.007	31.11	8.08	16.3	100.3	Clear	None
13:20	5	15	200	64.95	1.06	7.1	3.008	22.58	8.75	16.3	103	Clear	None
13:25	5	20	200	64.95	1.32	7.13	3.008	16.81	8.58	16.4	105	Clear	None
13:30	5	25	200	64.98	1.59	7.14	3.01	12.38	8.56	16.5	106.1	Clear	None
13:35	5	30	200	65.03	1.85	7.14	3.006	11.64	8.42	16.6	107.7	Clear	None
13:40	5	35	200	65.03	2.11	7.12	3.011	11.32	8.33	16.4	111.1	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS - Method 537 mod.	250mL HDPE Plastic	2	None
1,4-Dioxane 8270D SIM,VOCs	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-16-82			**Date**	5/14/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	57.0 degrees F and Cloudy. The wind is blowing NE at 8.1 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	68.20	**Total Depth (ft-bmp)**	77.15	**Water Column (ft)**	8.95	**Gallons in Well**	1.45
Purge Start	12:10	**Pump Intake (ft-bmp)**	75	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	12:50	**Volumes Purged**	0.73	**Sample ID**	MW-16-82_051424	**Sampled by**	Billy Cobern
Sample Time	12:50	**Gallons Purged**	1.06	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
12:15	0	0	100	68.70	0.13	6.95	1.337	15.98	3.41	15.6	-84.4	Clear	None
12:20	5	5	100	68.88	0.26	6.94	1.34	19.82	1.21	15.4	-88.5	Clear	None
12:25	5	10	100	68.05	0.40	6.94	1.33	12.5	0.46	15.3	-92.5	Clear	None
12:30	5	15	100	68.21	0.53	6.95	1.319	10.47	0.4	15.2	-91.9	Clear	None
12:35	5	20	100	68.36	0.66	6.96	1.307	8.07	0.47	15.1	-86.3	Clear	None
12:40	5	25	100	68.50	0.79	6.97	1.305	7.03	0.52	15.1	-83.2	Clear	None
12:45	5	30	100	68.64	0.92	6.97	1.304	6.87	0.53	15.1	-82.7	Clear	None
12:50	5	35	100	68.79	1.06	6.97	1.304	7.04	0.54	15.2	-82.1	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments: Didn't meet drawdown requirements

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-16-84			**Date**	5/14/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	54.0 degrees F and Cloudy. The wind is blowing NE at 9.2 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	70.01	**Total Depth (ft-bmp)**	81.15	**Water Column (ft)**	11.14	**Gallons in Well**	1.81
Purge Start	13:15	**Pump Intake (ft-bmp)**	79	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	14:10	**Volumes Purged**	0.80	**Sample ID**	MW-16-84_051424	**Sampled by**	Billy Cobern
Sample Time	14:10	**Gallons Purged**	1.45	**Replicate/ Code No.**	MW-16-84_051424	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
13:20	0	0	100	70.48	0.13	7.1	2.238	303.73	8.65	15.2	47.7	Clear	None
13:25	5	5	100	70.75	0.26	6.92	2.328	281.94	4.02	14.8	52	Clear	None
13:30	5	10	100	70.89	0.40	6.93	2.289	221.63	3.46	15	57.2	Clear	None
13:35	5	15	100	70.99	0.53	6.94	2.269	194.37	3.49	15	60.5	Clear	None
13:40	5	20	100	71.10	0.66	6.94	2.271	129.47	3.48	14.8	61	Clear	None
13:45	5	25	100	71.21	0.79	6.95	2.28	101.48	3.35	14.8	60.6	Clear	None
13:50	5	30	100	71.32	0.92	6.94	2.285	90.69	3.25	14.9	60.1	Clear	None
13:55	5	35	100	71.42	1.06	6.94	2.295	83.58	3.14	14.9	59.5	Clear	None
14:00	5	40	100	71.51	1.19	6.94	2.313	69.43	3	14.9	58.1	Clear	None
14:05	5	45	100	71.51	1.32	6.94	2.326	65.85	2.89	15.1	58.1	Clear	None
14:10	5	50	100	71.60	1.45	6.94	2.327	66.82	2.88	15	58.1	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM,VOCs	40 mL Glass	9	HCL

Comments: Didn't meet drawdown requirements

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-16-85			**Date**	5/16/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	63.0 degrees F and Clear. The wind is blowing at 3.4 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	71.49	**Total Depth (ft-bmp)**	81.75	**Water Column (ft)**	10.26	**Gallons in Well**	1.67
Purge Start	12:10	**Pump Intake (ft-bmp)**	79.25	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	12:50	**Volumes Purged**	0.63	**Sample ID**	MW-16-85_051624	**Sampled by**	Billy Cobern
Sample Time	12:50	**Gallons Purged**	1.06	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
12:15	0	0	100	72.25	0.13	7.41	1.042	205.75	6.53	17.7	-6.6	Gray	None
12:20	5	5	100	73.00	0.26	7.25	1.033	275.47	1.56	15.5	-75.7	Gray	None
12:25	5	10	100	73.38	0.40	7.28	0.981	186.47	2.47	17.5	-83.3	Gray	None
12:30	5	15	100	73.53	0.53	7.25	0.961	207.97	1.04	17.3	-88.3	Gray	None
12:35	5	20	100	73.73	0.66	7.25	0.929	204.57	0.82	17.6	-89.3	Gray	None
12:40	5	25	100	73.94	0.79	7.25	0.926	200	0.74	18.4	-89.2	Gray	None
12:45	5	30	100	74.15	0.92	7.25	0.93	193.79	0.74	18.4	-89.2	Gray	None
12:50	5	35	100	74.35	1.06	7.25	0.929	197.58	0.73	18.4	-89.1	Gray	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM,VOCs	40 mL Glass	3	HCL

Comments: Didn't meet drawdown requirements

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-17-86			**Date**	5/14/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	57.0 degrees F and Cloudy. The wind is blowing NE at 10.3 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	66.99	**Total Depth (ft-bmp)**	81.45	**Water Column (ft)**	14.46	**Gallons in Well**	2.35
Purge Start	14:45	**Pump Intake (ft-bmp)**	79	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	15:25	**Volumes Purged**	0.45	**Sample ID**	MW-17-86_051424	**Sampled by**	Billy Cobern
Sample Time	15:25	**Gallons Purged**	1.06	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
14:50	0	0	100	67.03	0.13	7.13	2.757	37.67	6.28	16.4	-53.2	Clear	None
14:55	5	5	100	67.03	0.26	7.04	2.825	31.07	2.19	15.4	-60	Clear	None
15:00	5	10	100	67.03	0.40	7.03	2.812	30.43	0.85	15.2	-61.2	Clear	None
15:05	5	15	100	67.03	0.53	7.04	2.794	23.74	0.64	15	-57.4	Clear	None
15:10	5	20	100	67.03	0.66	7.04	2.781	17.49	0.65	14.9	-53.6	Clear	None
15:15	5	25	100	67.03	0.79	7.05	2.779	14.91	0.66	14.9	-52.4	Clear	None
15:20	5	30	100	67.03	0.92	7.05	2.779	14.29	0.67	14.9	-52.5	Clear	None
15:25	5	35	100	67.03	1.06	7.05	2.784	13.94	0.67	14.9	-53.1	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM,VOCs	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-18-88			**Date**	5/22/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	75.0 degrees F and Cloudy. The wind is blowing S/SW at 15.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	5.19	**Total Depth (ft-bmp)**	15	**Water Column (ft)**	9.81	**Gallons in Well**	1.59
Purge Start	11:15	**Pump Intake (ft-bmp)**	12.5	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	11:50	**Volumes Purged**	0.58	**Sample ID**	MW-18-88_052224	**Sampled by**	Billy Cobern
Sample Time	11:50	**Gallons Purged**	0.92	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
11:20	0	0	100	5.25	0.13	7.12	0.684	19.28	1.12	17.4	71.2	Clear	None
11:25	5	5	100	5.25	0.26	7.12	0.684	10.21	0.54	17.8	68.9	Clear	None
11:30	5	10	100	5.25	0.40	7.1	0.682	8.31	0.14	17.8	64.9	Clear	None
11:35	5	15	100	5.25	0.53	7.09	0.681	7.67	0.19	16.9	59.6	Clear	None
11:40	5	20	100	5.25	0.66	7.09	0.679	7.62	0.25	17	59.6	Clear	None
11:45	5	25	100	5.25	0.79	7.09	0.679	7.27	0.27	17	59.4	Clear	None
11:50	5	30	100	5.25	0.92	7.09	0.681	7.21	0.27	16.9	58.6	Clear	None

Constituent Sampled	Container	Number	Preservative
Hexavalent Chromium SW-846 7196	250 mL Plastic	1	None
PFAS	250 mL Plastic	2	None
Total Metals	125 mL Plastic	1	HNO3
VOCs	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-18-89			**Date**	5/20/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	It is Cloudy. The wind is blowing W/NW at 9.2 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	6.55	**Total Depth (ft-bmp)**	12	**Water Column (ft)**	5.45	**Gallons in Well**	0.89
Purge Start	13:05	**Pump Intake (ft-bmp)**	9	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	14:03	**Volumes Purged**	1.63	**Sample ID**	MW-18-89_052124	**Sampled by**	Jackie Schulte
Sample Time	09:15	**Gallons Purged**	1.45	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
13:10	0	0	100	7.14	0.13	8.04	0.843	7.08	1	19.6	-12	Clear	None
13:20	10	10	100	7.94	0.40	7.94	0.84	9.55	2.03	22.4	-51.5	Clear	None
13:25	5	15	100	8.64	0.53	7.83	0.848	4.6	0.38	17.9	-125.4	Clear	None
13:35	10	25	100	9.16	0.79	7.78	0.866	6.19	2.58	19.7	-97.5	Clear	None
13:40	5	30	100	9.75	0.92	7.75	0.856	8.38	0.93	17.5	-125.2	Clear	None
13:45	5	35	100	10.26	1.06	7.73	0.853	11.22	0.28	17.6	-131.9	Clear	None
13:50	5	40	100	10.72	1.19	7.7	0.855	14.5	0.2	18	-130.8	Clear	None
13:55	5	45	100	11.00	1.32	7.67	0.856	19	0.21	18.7	-127.6	Clear	None
14:00	5	50	100	11.35	1.45	7.65	0.861	23.27	0.23	17.9	-122.7	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments: Well went dry at 1403. Will sample refill later. Recharge sample taken at 0915 on 5/21/24.

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot

1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location:

Condition of Well: Good condition

Well Completion: Stick-up

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-18-90			**Date**	5/20/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	77.0 degrees F and Partly Cloudy.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	9.43	**Total Depth (ft-bmp)**	20	**Water Column (ft)**	10.57	**Gallons in Well**	1.72
Purge Start	14:25	**Pump Intake (ft-bmp)**	17	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	15:35	**Volumes Purged**	1.08	**Sample ID**	MW-18-90_052024	**Sampled by**	Jackie Schulte
Sample Time	15:25	**Gallons Purged**	1.85	**Replicate/ Code No.**	DUP-06_052024	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
14:30	0	0	100	9.46	0.13	12.22	1.717	3.76	0.73	15.9	12.2	Clear	None
14:35	5	5	100	9.50	0.26	12.08	1.717	7.27	0.32	17.1	-19.5	Clear	None
14:40	5	10	100	9.50	0.40	12.14	1.733	11.67	0.14	15.4	-34.3	Clear	None
14:45	5	15	100	9.50	0.53	12.15	1.743	15.4	0.01	14.8	-45.7	Clear	None
14:50	5	20	100	9.50	0.66	12.14	1.731	23.55	0	15.4	-54.9	Clear	None
14:55	5	25	100	9.50	0.79	12.13	1.727	24.82	0	15.7	-60.9	Clear	None
15:00	5	30	100	9.50	0.92	12.14	1.766	4.57	0	15.7	-68.3	Clear	None
15:05	5	35	100	9.50	1.06	12.16	1.795	7.15	0	15.6	-72.6	Clear	None
15:10	5	40	100	9.50	1.19	12.16	1.819	10.17	0	15.9	-78.1	Clear	None
15:15	5	45	100	9.50	1.32	12.16	1.839	12.11	0	16	-82	Clear	None
15:20	5	50	100	9.50	1.45	12.18	1.883	18.9	0	16	-85.9	Clear	None
15:25	5	55	100	9.50	1.59	12.15	1.884	16	0	16.7	-89.9	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments: Well did not stabilize after 60 minute purge.

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location:

Well Locked at Arrival: yes

Condition of Well: Good condition

Well Locked at Departure: yes

Well Completion: Stick-up

Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-18-91			**Date**	5/21/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	63.0 degrees F and Cloudy. The wind is blowing undefined at 0.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	5.70	**Total Depth (ft-bmp)**	15.08	**Water Column (ft)**	9.38	**Gallons in Well**	1.52
Purge Start	10:50	**Pump Intake (ft-bmp)**	11.58	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	11:20	**Volumes Purged**	1.05	**Sample ID**	MW-18-91_052124	**Sampled by**	Austin Westhuis
Sample Time	11:15	**Gallons Purged**	1.59	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
10:55	0	0	200	7.05	0.26	7.74	0.577	19.55	0.47	14.9	81.3	Clear	None
11:00	5	5	200	7.57	0.53	7.75	0.572	8.89	0.31	15	74.6	Clear	None
11:05	5	10	200	8.22	0.79	7.76	0.563	4.68	0.27	14.8	63.7	Clear	None
11:10	5	15	200	8.63	1.06	7.76	0.566	4.13	0.26	14.8	60.9	Clear	None
11:15	5	20	200	8.91	1.32	7.74	0.569	3.88	0.26	14.8	58.8	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-18-92			**Date**	5/21/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	75.0 degrees F and Clear. The wind is blowing undefined at 0.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	13.86	**Total Depth (ft-bmp)**	30.12	**Water Column (ft)**	16.26	**Gallons in Well**	2.64
Purge Start	14:30	**Pump Intake (ft-bmp)**	27.62	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	15:05	**Volumes Purged**	0.70	**Sample ID**	MW-18-92_052124	**Sampled by**	Austin Westhuis
Sample Time	15:00	**Gallons Purged**	1.85	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
14:35	0	0	200	13.86	0.26	6.87	1.017	22.43	0.46	13.4	142.6	Clear	None
14:40	5	5	200	13.86	0.53	6.87	1.018	11.24	0.39	13.3	141.9	Clear	None
14:45	5	10	200	13.86	0.79	6.87	1.02	6.48	0.35	13.4	141.4	Clear	None
14:50	5	15	200	13.86	1.06	6.89	1.019	4.93	0.32	13.3	141.6	Clear	None
14:55	5	20	200	13.86	1.32	6.87	1.018	4.39	0.31	13.1	139.8	Clear	None
15:00	5	25	200	13.86	1.59	6.87	1.018	4.07	0.31	13.3	138.8	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-18-93			**Date**	5/21/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	61.0 degrees F and Cloudy. The wind is blowing W at 4.7 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	47.79	**Total Depth (ft-bmp)**	85	**Water Column (ft)**	37.21	**Gallons in Well**	6.05
Purge Start	09:10	**Pump Intake (ft-bmp)**	82.5	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	10:05	**Volumes Purged**	0.24	**Sample ID**	MW-18-93_052124	**Sampled by**	Billy Cobern
Sample Time	10:05	**Gallons Purged**	1.45	**Replicate/ Code No.**	DUP-08_052124	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
09:15	0	0	100	48.09	0.13	7.22	0.7	537.48	4.81	16.3	-23	Clear	None
09:20	5	5	100	48.29	0.26	7.25	0.702	539.89	5.15	16	-45.4	Clear	None
09:25	5	10	100	48.49	0.40	7.26	0.699	532.78	4.5	16.1	-66.9	Clear	None
09:30	5	15	100	48.69	0.53	7.26	0.699	511.88	3.6	16.2	-75.6	Clear	None
09:35	5	20	100	48.89	0.66	7.28	0.7	487.97	1.82	16.4	-87.2	Clear	None
09:40	5	25	100	49.07	0.79	7.3	0.7	432.46	1.17	16.5	-95.5	Clear	None
09:45	5	30	100	49.25	0.92	7.32	0.699	316.78	0.75	16.6	-103.5	Clear	None
09:50	5	35	100	49.41	1.06	7.32	0.698	278.37	0.66	16.9	-105.8	Clear	None
09:55	5	40	100	49.58	1.19	7.33	0.7	251.33	0.62	17.2	-106.6	Clear	None
10:00	5	45	100	49.72	1.32	7.35	0.7	242.72	0.61	17.1	-106.8	Clear	None
10:05	5	50	100	49.88	1.45	7.34	0.7	252.56	0.61	17.2	-107	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	4	None

Comments: Didn't meet drawdown requirements

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-18-94			**Date**	5/21/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	70.0 degrees F and . The wind is blowing undefined at 0.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	53.14	**Total Depth (ft-bmp)**	81.1	**Water Column (ft)**	27.96	**Gallons in Well**	4.54
Purge Start	13:16	**Pump Intake (ft-bmp)**	80	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	14:30	**Volumes Purged**	0.66	**Sample ID**	MW-18-94_052124	**Sampled by**	Jarrett Humpula
Sample Time	14:25	**Gallons Purged**	3	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
13:22	0	0	150	53.14	0.24	6.87	6.246	533.15	4.35	17.1	-71.5	Clear	None
13:27	5	5	150	53.14	0.44	6.84	6.37	330.47	0.62	16.6	-85.4	Clear	None
13:32	5	10	150	53.14	0.63	6.85	6.208	320.92	0.4	15.9	-86.9	Clear	None
13:37	5	15	150	53.14	0.83	6.85	6.186	257.95	0.19	16.1	-89.6	Clear	None
13:42	5	20	150	53.14	1.03	6.85	6.159	252.28	0.06	16	-91.5	Clear	None
13:47	5	25	150	53.14	1.23	6.85	6.139	291.94	0	16	-92.7	Clear	None
13:52	5	30	150	53.14	1.43	6.85	6.119	325.12	0	16.1	-93.8	Clear	None
13:57	5	35	150	53.14	1.62	6.85	6.134	327.24	0	16.4	-94.2	Clear	None
14:02	5	40	150	53.14	1.82	6.85	6.132	326.31	0	16.2	-94.6	Clear	None
14:07	5	45	150	53.14	2.02	6.86	6.091	435.87	0	16.3	-94.6	Clear	None
14:12	5	50	150	53.14	2.22	6.85	6.124	511.79	0	16.2	-95.1	Clear	None
14:17	5	55	150	53.14	2.42	6.86	6.107	414.78	0	16.2	-95.4	Clear	None
14:22	5	60	150	53.14	2.62	6.86	6.067	566.35	0	15.7	-95.5	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-18-95			**Date**	5/21/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	62.1 degrees F and Cloudy. The wind is blowing W/NW at 4.7 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	6.56	**Total Depth (ft-bmp)**	9.5	**Water Column (ft)**	2.94	**Gallons in Well**	0.48
Purge Start	09:45	**Pump Intake (ft-bmp)**	9	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	10:50	**Volumes Purged**	3.02	**Sample ID**	MW-18-95_052124	**Sampled by**	Jackie Schulte
Sample Time	10:40	**Gallons Purged**	1.45	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
09:50	0	0	100	6.65	0.13	7.32	0.463	4.59	1.03	15.4	221.2	Clear	None
09:55	5	5	100	6.65	0.26	7.34	0.468	2.99	0.47	15.4	217	Clear	None
10:00	5	10	100	6.66	0.40	7.35	0.472	2.71	0.27	15.3	212.2	Clear	None
10:05	5	15	100	6.65	0.53	7.35	0.473	2.6	0.21	15.5	207.2	Clear	None
10:10	5	20	100	6.65	0.66	7.35	0.474	2.55	0.2	15.7	203.7	Clear	None
10:20	10	30	100	6.65	0.92	7.34	0.475	2.63	0.15	15.9	195.6	Clear	None
10:25	5	35	100	6.65	1.06	7.33	0.475	2.75	0.14	16	192.4	Clear	None
10:30	5	40	100	6.65	1.19	7.33	0.476	2.94	0.19	16.6	188.3	Clear	None
10:35	5	45	100	6.65	1.32	7.33	0.476	3.32	0.2	16.5	186.3	Clear	None
10:40	5	50	100	6.65	1.45	7.33	0.475	3.59	0.18	16.7	182	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments: Sample pulled because well was nearly stable and pump battery was nearly dead.

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-18-97			**Date**	5/21/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	63.0 degrees F and Cloudy. The wind is blowing undefined at 0.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	63.12	**Total Depth (ft-bmp)**	92.98	**Water Column (ft)**	29.86	**Gallons in Well**	4.85
Purge Start	11:30	**Pump Intake (ft-bmp)**	90.48	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	12:45	**Volumes Purged**	0.72	**Sample ID**	MW-18-97_052124	**Sampled by**	Jarrett Humpula
Sample Time	12:40	**Gallons Purged**	3.5	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
11:35	0	0	150	63.12	0.20	7	1.691	413.38	4.38	18.1	-69.2	Clear	None
11:40	5	5	150	63.12	0.40	6.9	1.594	283.66	1.74	16.3	-75	Clear	None
11:45	5	10	150	63.12	0.59	6.9	1.535	264.66	0.67	15.5	-78.7	Clear	None
11:50	5	15	150	63.12	0.79	6.9	1.521	237.76	0.35	15.9	-81.2	Clear	None
11:55	5	20	150	63.12	0.99	6.9	1.52	104.68	0.76	15.4	-79.8	Clear	None
12:00	5	25	150	63.12	1.19	6.9	1.5	120.69	0.38	15.1	-81.6	Clear	None
12:05	5	30	150	63.12	1.39	6.89	1.506	253.03	0.19	15.5	-82.9	Clear	None
12:10	5	35	150	63.12	1.59	6.9	1.499	255.47	0.08	15.3	-83.7	Clear	None
12:15	5	40	150	63.12	1.78	6.9	1.498	332.07	0.04	15.4	-84.6	Clear	None
12:20	5	45	150	63.12	1.98	6.9	1.505	608.54	0.02	15.5	-84.4	Clear	None
12:25	5	50	150	63.12	2.18	6.9	1.511	666.34	0	15.5	-84.7	Clear	None
12:30	5	55	150	63.12	2.38	6.9	1.505	655.82	-0.03	15.2	-85.1	Clear	None
12:35	5	60	150	63.12	2.58	6.9	1.502	621.38	-0.04	15.4	-85	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-18-98			**Date**	5/20/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	75.0 degrees F and Clear. The wind is blowing N at 11.4 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	5.40	**Total Depth (ft-bmp)**	14.93	**Water Column (ft)**	9.53	**Gallons in Well**	1.55
Purge Start	15:15	**Pump Intake (ft-bmp)**	13	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	16:25	**Volumes Purged**	1.39	**Sample ID**	MW-18-98_052024	**Sampled by**	Ellen Redner
Sample Time	16:20	**Gallons Purged**	2.15	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate gal/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
15:20	0	0	0.04	7.03	0.2	7.39	1.042	20.1	0.55	14.4	178.7	Clear	None
15:25	5	5	0.03	7.75	0.35	7.43	0.985	14.2	0.76	14.6	177.7	Clear	None
15:30	5	10	0.03	8.32	0.5	7.5	0.908	5.14	1.97	14.8	174.8	Clear	None
15:35	5	15	0.03	8.60	0.65	7.5	0.927	4.21	2.53	14.8	174.8	Clear	None
15:40	5	20	0.03	8.80	0.8	7.45	0.963	4.24	2.08	14.7	174.9	Clear	None
15:45	5	25	0.03	9.12	0.95	7.43	0.974	4.16	1.83	15.2	174.8	Clear	None
15:50	5	30	0.03	9.50	1.1	7.42	0.985	4.24	1.64	14.9	173.8	Clear	None
15:55	5	35	0.03	10.01	1.25	7.42	0.986	4.16	1.68	14.9	172.9	Clear	None
16:00	5	40	0.03	10.27	1.4	7.42	0.983	4.01	1.74	15	172.9	Clear	None
16:05	5	45	0.03	10.61	1.55	7.44	0.972	4.8	2.01	15	171.3	Clear	None
16:10	5	50	0.03	10.91	1.7	7.41	0.986	10.1	1.66	15.3	170.2	Clear	None
16:15	5	55	0.03	11.20	1.85	7.4	0.988	13.2	1.6	15.3	169.8	Clear	None
16:20	5	60	0.03	11.63	2	7.39	0.996	14.3	1.4	15.1	169.3	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments: Water level did not stabilize.

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location:

Condition of Well: Good condition

Well Completion: Stick-up

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-18-99			**Date**	5/20/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	77.0 degrees F and Clear. The wind is blowing NE at 9.2 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	3.45	**Total Depth (ft-bmp)**	16.9	**Water Column (ft)**	13.45	**Gallons in Well**	2.19
Purge Start	16:35	**Pump Intake (ft-bmp)**	15.5	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	17:45	**Volumes Purged**	1.00	**Sample ID**	MW-18-99_052024	**Sampled by**	Ellen Redner
Sample Time	17:40	**Gallons Purged**	2.2	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate gal/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
16:40	0	0	0.04	4.50	0.2	7.7	1.39	23.8	0.58	15.3	120.4	Clear	None
16:45	5	5	0.04	5.40	0.4	7.79	1.32	17.6	0.3	15.4	76.3	Clear	None
16:50	5	10	0.03	5.53	0.55	7.8	1.3	14.8	0.28	16.1	40.6	Clear	None
16:55	5	15	0.03	5.68	0.7	7.8	1.285	15.4	0.24	15.8	6.5	Clear	None
17:00	5	20	0.03	5.83	0.85	7.82	1.235	22.9	0.22	15.8	-38.7	Clear	None
17:05	5	25	0.03	5.93	1	7.87	1.192	12.2	0.28	15.3	-67.9	Clear	None
17:10	5	30	0.03	6.00	1.15	7.89	1.161	9.2	0.3	15.3	-82.6	Clear	None
17:15	5	35	0.03	6.03	1.3	7.94	1.126	15.2	0.39	15.4	-96	Clear	None
17:20	5	40	0.03	6.04	1.45	7.99	1.119	12.1	0.45	15.4	-100.9	Clear	None
17:25	5	45	0.03	6.05	1.6	8.02	1.125	8.3	0.44	15.2	-103.1	Clear	None
17:30	5	50	0.03	6.05	1.75	8.04	1.127	9.18	0.47	15.3	-111.3	Clear	None
17:35	5	55	0.03	6.05	1.9	8.06	1.129	8.99	0.49	15	-113.7	Clear	None
17:40	5	60	0.03	6.06	2.05	8.06	1.121	6.78	0.37	15.1	-117.4	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments: DO did not stabilize.

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location:

Condition of Well: Good condition

Well Completion: Stick-up

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-18-100			**Date**	5/21/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	79.0 degrees F and Clear. The wind is blowing undefined at 0.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	10.20	**Total Depth (ft-bmp)**	13	**Water Column (ft)**	2.80	**Gallons in Well**	0.45
Purge Start	15:00	**Pump Intake (ft-bmp)**	11	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	15:45	**Volumes Purged**	2.64	**Sample ID**	MW-18-100_052124	**Sampled by**	Jackie Schulte
Sample Time	15:40	**Gallons Purged**	1.19	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
15:05	0	0	100	10.42	0.13	7.96	1.48	8.61	4.49	20.8	116.3	Clear	None
15:10	5	5	100	10.58	0.26	7.73	1.337	5.12	3.76	17.1	127.2	Clear	None
15:15	5	10	100	10.60	0.40	7.61	1.355	4.46	3.5	18.1	132	Clear	None
15:20	5	15	100	10.62	0.53	7.58	1.386	4.54	3.4	17.7	136	Clear	None
15:25	5	20	100	10.66	0.66	7.57	1.368	4.96	3.3	16.8	140.1	Clear	None
15:30	5	25	100	10.66	0.79	7.55	1.367	5.14	3.29	17	143.4	Clear	None
15:35	5	30	100	10.70	0.92	7.54	1.38	5.04	3.27	16.6	147.2	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments: Cone was taken from well to mark a driving hazard. JS left a new cone as there are many cars parked in this area.

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot

1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3

Condition of Well: Good condition

Well Completion: Stick-up

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-18-101			**Date**	5/21/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	79.0 degrees F and Clear. The wind is blowing undefined at 0.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	63.48	**Total Depth (ft-bmp)**	88.1	**Water Column (ft)**	24.62	**Gallons in Well**	4.00
Purge Start	14:42	**Pump Intake (ft-bmp)**	87	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	15:52	**Volumes Purged**	0.80	**Sample ID**	MW-18-101_052124	**Sampled by**	Jarrett Humpula
Sample Time	15:50	**Gallons Purged**	3.2	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
14:48	0	0	150	63.48	0.24	6.89	3.991	89.54	4.15	15.8	-76.1	Clear	None
14:53	5	5	150	64.30	0.44	6.88	4.008	160.31	1.2	14.9	-81.5	Clear	None
14:58	5	10	150	64.30	0.63	6.86	4.235	208.68	0.5	14.9	-83.8	Clear	None
15:03	5	15	150	64.30	0.83	6.85	4.383	274.12	0.19	15.3	-86.2	Clear	None
15:08	5	20	150	64.30	1.03	6.85	4.367	293.07	0.06	14.9	-87.8	Clear	None
15:13	5	25	150	64.30	1.23	6.85	4.386	355.12	0	14.7	-89.1	Clear	None
15:18	5	30	150	64.30	1.43	6.85	4.415	375.28	0	14.9	-90.1	Clear	None
15:23	5	35	150	64.30	1.62	6.85	4.399	123.57	0	14.6	-90.8	Clear	None
15:28	5	40	150	64.30	1.82	6.85	4.422	76.28	0	14.8	-91.5	Clear	None
15:33	5	45	150	64.30	2.02	6.86	4.405	104.09	0	14.3	-91.8	Clear	None
15:38	5	50	150	64.30	2.22	6.96	4.406	113.92	0	14.4	-91.1	Clear	None
15:43	5	55	150	64.30	2.42	6.85	4.459	176.5	0	14.8	-91.8	Clear	None
15:48	5	60	150	64.30	2.62	6.91	4.424	234.83	0	14.6	-92.2	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL
PFAS	250mL HDPE Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-18-102			**Date**	5/20/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	78.1 degrees F and Clear. The wind is blowing S at 8.1 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	8.24	**Total Depth (ft-bmp)**	14.69	**Water Column (ft)**	6.45	**Gallons in Well**	1.05
Purge Start	12:20	**Pump Intake (ft-bmp)**	13	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	13:30	**Volumes Purged**	2.00	**Sample ID**	MW-18-102_052024	**Sampled by**	Ellen Redner
Sample Time	13:25	**Gallons Purged**	2.1	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate gal/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
12:25	0	0	0.03	8.68	0.15	7.12	0.673	47	5.55	12.9	186.9	Clear	None
12:30	5	5	0.03	8.75	0.3	7.12	0.675	55.8	5.36	12.8	186.1	Clear	None
12:35	5	10	0.03	8.82	0.45	7.13	0.675	52	5.42	13.1	184.8	Clear	None
12:40	5	15	0.03	8.88	0.6	7.13	0.675	46.9	5.35	13.2	184.3	Clear	None
12:45	5	20	0.03	8.92	0.75	7.14	0.672	31.6	4.34	12.8	182.2	Clear	None
12:50	5	25	0.03	8.98	0.9	7.14	0.669	28.4	3.78	13	181.3	Clear	None
12:55	5	30	0.03	9.00	1.05	7.15	0.668	24.6	3.41	12.9	180.3	Clear	None
13:00	5	35	0.03	9.04	1.2	7.15	0.667	24.1	3.02	12.9	179.3	Clear	None
13:05	5	40	0.03	9.06	1.35	7.15	0.666	20.5	2.76	12.7	178.5	Clear	None
13:10	5	45	0.03	9.09	1.5	7.15	0.665	20.3	2.51	12.6	177.4	Clear	None
13:15	5	50	0.03	9.12	1.65	7.15	0.665	18.5	2.19	12.7	176.4	Clear	None
13:20	5	55	0.03	9.12	1.8	7.15	0.665	18.2	2.04	12.8	175.5	Clear	None
13:25	5	60	0.03	9.11	1.95	7.15	0.666	17.5	2.08	12.6	175.1	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location:

Condition of Well: Good condition

Well Completion: Flush mount

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-18-103			**Date**	5/20/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	73.0 degrees F and Clear. The wind is blowing S at 5.8 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	3.00	**Total Depth (ft-bmp)**	10	**Water Column (ft)**	7.00	**Gallons in Well**	1.14
Purge Start	10:38	**Pump Intake (ft-bmp)**	7	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	12:25	**Volumes Purged**	1.09	**Sample ID**	MW-18-103_052024	**Sampled by**	Jackie Schulte
Sample Time	12:20	**Gallons Purged**	1.24	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
10:45	0	0	100	3.42	0.00	7.11	0.645	4.48	2.42	13.6	236.2	Clear	None
10:50	5	5	100	3.45	0.00	7.07	0.674	4.55	1.64	14.1	231	Clear	None
10:55	5	10	100	3.51	0.00	7.06	0.694	4.56	1.14	13.7	226.2	Clear	None
11:00	5	15	100	3.54	0.00	7.05	0.713	4.9	0.92	13.4	223.9	Clear	None
11:05	5	20	100	3.60	0.00	7.05	0.723	5.15	1.2	12.8	225.6	Clear	None
11:10	5	25	100	3.63	0.00	7.05	0.732	5.27	1.1	13.3	224.9	Clear	None
11:15	5	30	100	3.63	0.00	7.04	0.739	6.23	1.18	13.5	1.18	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments: Stop work called for thunder at 11:13 AM. Took final stabilized reading at 11:15. Packed pump and YSI into vehicle to allow rain to pass. Tubing and water level meter remain in well to sample once storm has passed. Sample taken at 12:20 once work resumed.

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location:
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-18-104			**Date**	5/20/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	73.0 degrees F and Clear. The wind is blowing S at 5.8 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	2.56	**Total Depth (ft-bmp)**	9.47	**Water Column (ft)**	6.91	**Gallons in Well**	1.12
Purge Start	10:35	**Pump Intake (ft-bmp)**	8	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	11:45	**Volumes Purged**	1.74	**Sample ID**	MW-18-104_052024	**Sampled by**	Ellen Redner
Sample Time	11:40	**Gallons Purged**	1.95	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate gal/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
10:40	0	0	0.03	2.99	0.15	6.93	0.731	28.4	2.45	13.3	192.4	Clear	None
10:45	5	5	0.03	3.18	0.3	6.93	0.727	19.6	1.41	13.8	189.4	Clear	None
10:50	5	10	0.03	3.50	0.45	6.97	0.66	11	2.01	13.8	186.9	Clear	None
10:55	5	15	0.03	3.85	0.6	6.95	0.668	5.99	1.98	13.8	186.3	Clear	None
11:00	5	20	0.03	4.10	0.75	6.95	0.668	6.07	2	13.7	185.5	Clear	None
11:05	5	25	0.03	4.30	0.9	6.96	0.663	6.48	2.04	13.6	185.1	Clear	None
11:10	5	30	0.03	4.55	1.05	6.96	0.657	6.95	2.11	13.7	184.6	Clear	None
11:15	5	35	0.03	4.90	1.2	6.96	0.651	6.64	2.15	13.8	183.9	Clear	None
11:20	5	40	0.03	5.10	1.35	6.97	0.638	8.3	2.22	13.7	183.6	Clear	None
11:25	5	45	0.03	5.40	1.5	6.98	0.633	8.71	2.26	13.6	183.3	Clear	None
11:30	5	50	0.03	5.70	1.65	6.99	0.649	11.4	2.16	13.7	183.1	Clear	None
11:35	5	55	0.03	6.00	1.8	6.99	0.661	12.5	2.01	13.5	182.8	Clear	None
11:40	5	60	0.03	6.30	1.95	7	0.672	13.02	1.9	13.4	182.7	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments: Water level did not stabilize.

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location:

Condition of Well: Good condition

Well Completion: Flush mount

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-18-105			**Date**	5/20/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	63.0 degrees F and Clear. The wind is blowing undefined at 0.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	1.59	**Total Depth (ft-bmp)**	11	**Water Column (ft)**	9.41	**Gallons in Well**	1.53
Purge Start	09:08	**Pump Intake (ft-bmp)**	9	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	10:18	**Volumes Purged**	1.21	**Sample ID**	MW-18-105_052024	**Sampled by**	Jackie Schulte
Sample Time	10:10	**Gallons Purged**	1.85	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
09:15	0	0	100	2.00	0.18	7.01	0.615	4.43	0.52	12.5	277.6	Clear	None
09:20	5	5	100	2.26	0.32	6.86	0.611	3.25	0.19	12.3	267.5	Clear	None
09:25	5	10	100	2.50	0.45	6.95	0.612	3.29	0.06	12.3	257	Clear	None
09:30	5	15	100	2.65	0.58	6.94	0.614	2.72	0.02	12.8	247.3	Clear	None
09:35	5	20	100	2.84	0.71	6.95	0.614	3	0	12.5	233.6	Clear	None
09:40	5	25	100	3.03	0.85	6.95	0.613	2.8	0	12.4	214.2	Clear	None
09:45	5	30	100	3.22	0.98	6.95	0.617	3.32	0	12.1	183.1	Clear	None
09:50	5	35	100	3.35	1.11	6.95	0.616	3.08	0	12.2	160	Clear	None
09:55	5	40	100	3.50	1.24	6.96	0.615	3.47	0	12.2	140.6	Clear	None
10:00	5	45	100	3.70	1.37	6.97	0.616	3.33	0	12	111.9	Clear	None
10:05	5	50	100	3.70	1.51	6.95	0.62	4.01	0	12.2	110	Clear	None
10:10	5	55	100	4.05	1.64	6.96	0.621	3.81	0	12	105.7	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments: Well is infested with mosquitos.

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location:

Condition of Well: Good condition

Well Completion: Flush mount

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-19-107			**Date**	5/21/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	79.0 degrees F and Clear. The wind is blowing undefined at 0.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	15.72	**Total Depth (ft-bmp)**	29.85	**Water Column (ft)**	14.13	**Gallons in Well**	2.30
Purge Start	15:20	**Pump Intake (ft-bmp)**	27.35	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	15:55	**Volumes Purged**	0.80	**Sample ID**	MW-19-107_052124	**Sampled by**	Austin Westhuis
Sample Time	15:50	**Gallons Purged**	1.85	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
15:25	0	0	200	16.80	0.26	6.72	0.979	149.75	0.15	12.6	21.6	Clear	None
15:30	5	5	200	16.80	0.53	6.71	0.989	102.17	0.12	13	8.2	Clear	None
15:35	5	10	200	16.80	0.79	6.71	0.994	62.02	0.1	13.2	-2.7	Clear	None
15:40	5	15	200	16.80	1.06	6.71	0.994	54.43	0.07	13.2	-9.3	Clear	None
15:45	5	20	200	16.80	1.32	6.71	0.996	52.16	0.07	13.2	-12.8	Clear	None
15:50	5	25	200	16.80	1.59	6.71	0.993	50.93	0.07	13.2	-15.6	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-19-108			**Date**	5/21/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	70.0 degrees F and . The wind is blowing undefined at 0.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	14.55	**Total Depth (ft-bmp)**	30.05	**Water Column (ft)**	15.50	**Gallons in Well**	2.52
Purge Start	13:35	**Pump Intake (ft-bmp)**	27.55	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	14:10	**Volumes Purged**	0.73	**Sample ID**	MW-19-108_052124	**Sampled by**	Austin Westhuis
Sample Time	14:05	**Gallons Purged**	1.85	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
13:40	0	0	200	14.85	0.26	6.67	1.299	11.74	0.22	12.1	120.8	Clear	None
13:45	5	5	200	14.85	0.53	6.67	1.292	5.58	0.18	12	125.1	Clear	None
13:50	5	10	200	14.85	0.79	6.68	1.306	3.94	0.16	12	129.4	Clear	None
13:55	5	15	200	14.85	1.06	6.67	1.302	3.03	0.14	12	126.4	Clear	None
14:00	5	20	200	14.85	1.32	6.67	1.302	2.81	0.13	12.1	123.2	Clear	None
14:05	5	25	200	14.85	1.59	6.67	1.3	2.42	0.13	12.1	121.2	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-19-111			**Date**	5/21/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	68.0 degrees F and Mostly Cloudy. The wind is blowing N/NW at 3.4 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	21.49	**Total Depth (ft-bmp)**	27.42	**Water Column (ft)**	5.93	**Gallons in Well**	0.96
Purge Start	12:15	**Pump Intake (ft-bmp)**	24.92	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	12:50	**Volumes Purged**	1.93	**Sample ID**	MW-19-111_052124	**Sampled by**	Austin Westhuis
Sample Time	12:45	**Gallons Purged**	1.85	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
12:20	0	0	200	21.90	0.26	6.66	1.276	24.33	0.71	13.3	163.4	Clear	None
12:25	5	5	200	21.90	0.53	6.67	1.265	11.09	0.75	13.2	161.8	Clear	None
12:30	5	10	200	21.90	0.79	6.67	1.266	7.64	0.71	13.1	160.7	Clear	None
12:35	5	15	200	21.90	1.06	6.67	1.259	4.49	0.72	12.9	160	Clear	None
12:40	5	20	200	21.90	1.32	6.67	1.262	4.01	0.69	13.1	159.6	Clear	None
12:45	5	25	200	21.90	1.59	6.67	1.254	3.87	0.66	13.1	159.6	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot

1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3

Condition of Well: Good condition

Well Completion: Stick-up

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-19-112			**Date**	5/21/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	63.0 degrees F and Cloudy. The wind is blowing undefined at 0.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	5.10	**Total Depth (ft-bmp)**	14	**Water Column (ft)**	8.90	**Gallons in Well**	1.45
Purge Start	11:18	**Pump Intake (ft-bmp)**	12	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	12:25	**Volumes Purged**	1.22	**Sample ID**	MW-19-112_052124	**Sampled by**	Jackie Schulte
Sample Time	12:20	**Gallons Purged**	1.77	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
11:25	0	0	100	5.88	0.18	6.31	8.452	30	0.18	17.9	-74.9	Clear	None
11:30	5	5	100	6.07	0.32	6.32	8.512	53.03	0.13	19.1	-80.8	Clear	None
11:35	5	10	100	6.48	0.45	6.35	8.427	19.52	0.03	17.7	-82.6	Clear	None
11:40	5	15	100	6.95	0.58	6.36	8.432	19.61	0	17.3	-83.1	Clear	None
11:45	5	20	100	7.30	0.71	6.36	8.465	30	0	17.2	-83.1	Clear	None
11:50	5	25	100	7.41	0.85	6.34	8.5	21.01	0	17.8	-82.5	Clear	None
11:55	5	30	100	7.65	0.98	6.36	8.45	11	0	17.3	-81.9	Clear	None
12:00	5	35	100	8.02	1.11	6.36	8.5	9.05	0	17.1	-81.5	Clear	None
12:05	5	40	100	8.28	1.24	6.36	8.473	12.3	0	17.4	-80.8	Clear	None
12:10	5	45	100	8.28	1.37	6.35	8.444	13.5	0	18.9	-80.8	Clear	None
12:15	5	50	100	8.58	1.51	6.37	8.536	17.5	0	16.9	-79.5	Clear	None
12:20	5	55	100	8.80	1.64	6.37	8.532	9.95	0	17	-79.4	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments: Well did not stabilize after 62 minutes purge. Turbidity fluctuated greatly between measurements. Organic sheen visible on purge water.

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-19-113			**Date**	5/20/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	77.0 degrees F and Partly Cloudy. The wind is blowing NW at 16.1 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	24.12	**Total Depth (ft-bmp)**	24.59	**Water Column (ft)**	0.47	**Gallons in Well**	0.08
Purge Start	14:00	**Pump Intake (ft-bmp)**	24.59	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	14:05	**Volumes Purged**	0.00	**Sample ID**	MW-19-113_052124	**Sampled by**	Ellen Redner
Sample Time	12:55	**Gallons Purged**	0	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate gal/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
14:05	0	0	0	24.59								Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments: Well was purged dry on 5/20/24 before parameters could be collected. Collected sample on 5/21/24 after allowing to recharge overnight.

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot

1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location:

Condition of Well:

Well Completion:

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-19-114			**Date**	5/20/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	63.0 degrees F and Clear. The wind is blowing undefined at 0.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	1.85	**Total Depth (ft-bmp)**	10.77	**Water Column (ft)**	8.92	**Gallons in Well**	1.45
Purge Start	09:05	**Pump Intake (ft-bmp)**	9	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	10:15	**Volumes Purged**	1.45	**Sample ID**	MW-19-114_052024	**Sampled by**	Ellen Redner
Sample Time	10:10	**Gallons Purged**	2.1	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate gal/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
09:10	0	0	0.03	2.85	0.15	7.06	0.57	8.27	0.65	12.3	176.9	Clear	None
09:15	5	5	0.03	2.91	0.3	7.05	0.554	6.56	0.33	12.5	179.7	Clear	None
09:20	5	10	0.03	2.97	0.45	7.06	0.55	5.23	0.24	12.5	179.8	Clear	None
09:25	5	15	0.03	3.00	0.6	7.07	0.555	3.95	0.15	12.3	179.7	Clear	None
09:30	5	20	0.03	3.03	0.75	7.08	0.556	4.02	0.1	12.3	179.2	Clear	None
09:35	5	25	0.03	3.05	0.9	7.09	0.555	4.11	0.08	12.3	179	Clear	None
09:40	5	30	0.03	3.06	1.05	7.09	0.556	4.16	0.07	12.2	179	Clear	None
09:45	5	35	0.03	3.07	1.2	7.09	0.556	4.48	0.06	12.2	178.9	Clear	None
09:50	5	40	0.03	3.09	1.35	7.1	0.556	5.09	0.05	12.2	178.8	Clear	None
09:55	5	45	0.03	3.10	1.5	7.1	0.556	5.62	0.04	12.2	178.7	Clear	None
10:00	5	50	0.03	3.11	1.65	7.11	0.556	7.1	0.03	12.1	178.1	Clear	None
10:05	5	55	0.03	3.11	1.8	7.12	0.555	6.87	0.02	12.1	177.9	Clear	None
10:10	5	60	0.03	3.12	1.95	7.12	0.555	6.14	0.02	12.1	177.7	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments: DO did not stabilize.

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location:

Condition of Well: Good condition

Well Completion: Flush mount

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-19-115			**Date**	5/15/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	64.9 degrees F and Mostly Cloudy. The wind is blowing N at 15.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	58.81	**Total Depth (ft-bmp)**	80.3	**Water Column (ft)**	21.49	**Gallons in Well**	3.49
Purge Start	14:00	**Pump Intake (ft-bmp)**	78	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	14:30	**Volumes Purged**	0.23	**Sample ID**	MW-19-115_051524	**Sampled by**	Billy Cobern
Sample Time	14:30	**Gallons Purged**	0.79	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
14:05	0	0	100	59.11	0.13	6.8	3.134	36.74	4.82	19.5	-26.1	Clear	None
14:10	5	5	100	59.11	0.26	6.8	3.156	34.81	1.41	20	-34.2	Clear	None
14:15	5	10	100	59.11	0.40	6.82	3.174	32.17	0.69	20.6	-40.4	Clear	None
14:20	5	15	100	59.11	0.53	6.82	3.185	34.86	0.55	20.9	-41.5	Clear	None
14:25	5	20	100	59.11	0.66	6.82	3.183	37.33	0.5	21	-41	Clear	None
14:30	5	25	100	59.11	0.79	6.82	3.187	38.39	0.5	21	-40.8	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-19-116			**Date**	5/15/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	64.0 degrees F and Clear. The wind is blowing N/NE at 10.3 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	56.65	**Total Depth (ft-bmp)**	73.2	**Water Column (ft)**	16.55	**Gallons in Well**	2.69
Purge Start	12:40	**Pump Intake (ft-bmp)**	71	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	13:40	**Volumes Purged**	0.59	**Sample ID**	MW-19-116_051524	**Sampled by**	Billy Cobern
Sample Time	13:40	**Gallons Purged**	1.59	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
12:45	0	0	100	56.95	0.13	6.93	1.417	34.06	2.73	17.7	-73.8	Clear	None
12:50	5	5	100	56.95	0.26	6.93	1.415	27.66	1.93	17.7	-76.7	Clear	None
12:55	5	10	100	56.95	0.40	6.93	1.418	23.93	1.12	17.5	-80.1	Clear	None
13:00	5	15	100	56.95	0.53	6.94	1.415	24.11	0.51	17.2	-83	Clear	None
13:05	5	20	100	56.95	0.66	6.94	1.415	30.19	0.29	17	-84.3	Clear	None
13:10	5	25	100	56.95	0.79	6.94	1.415	38.59	0.22	16.9	-84.8	Clear	None
13:15	5	30	100	56.95	0.92	6.94	1.415	54.87	0.15	17.1	-85.2	Clear	None
13:20	5	35	100	56.95	1.06	6.94	1.415	65.86	0.11	17.2	-85.8	Clear	None
13:25	5	40	100	56.95	1.19	6.94	1.416	81.74	0.08	17.5	-86.4	Clear	None
13:30	5	45	100	56.95	1.32	6.94	1.416	93.87	0.11	17.4	-86.1	Clear	None
13:35	5	50	100	56.95	1.45	6.94	1.415	105.46	0.11	17.4	-86.5	Clear	None
13:40	5	55	100	56.95	1.59	6.94	1.416	111.11	0.11	17.4	-86.5	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments: Turbidity didn't stabilize after 60 minutes

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-19-117			**Date**	5/15/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	60.1 degrees F and Mostly Clear. The wind is blowing NE at 9.2 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	59.55	**Total Depth (ft-bmp)**	62.8	**Water Column (ft)**	3.25	**Gallons in Well**	0.53
Purge Start	11:25	**Pump Intake (ft-bmp)**	62	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	12:15	**Volumes Purged**	2.49	**Sample ID**	MW-19-117_051524	**Sampled by**	Billy Cobern
Sample Time	12:15	**Gallons Purged**	1.32	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
11:30	0	0	100	59.60	0.13	6.91	1.206	916.59	3.21	17.5	-76.2	Clear	None
11:35	5	5	100	59.62	0.26	6.9	1.189	732.86	1.18	17.4	-75.5	Clear	None
11:40	5	10	100	59.66	0.40	6.88	1.173	602.36	0.86	16.3	-71.5	Clear	None
11:45	5	15	100	59.69	0.53	6.88	1.172	399.79	0.46	16.5	-73.7	Clear	None
11:50	5	20	100	59.72	0.66	6.88	1.172	231.86	0.3	16.3	-73.9	Clear	None
11:55	5	25	100	59.75	0.79	6.87	1.171	130.79	0.24	16.5	-73.8	Clear	None
12:00	5	30	100	59.75	0.92	6.87	1.174	83.65	0.16	16.6	-72.5	Clear	None
12:05	5	35	100	59.75	1.06	6.87	1.176	68.88	0.12	16.7	-72.4	Clear	None
12:10	5	40	100	59.75	1.19	6.87	1.176	67.44	0.11	16.8	-72.5	Clear	None
12:15	5	45	100	59.75	1.32	6.87	1.176	66.36	0.11	16.7	-72.6	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-19-118D			**Date**	5/20/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	78.11	**Total Depth (ft-bmp)**	192.95	**Water Column (ft)**	114.84	**Gallons in Well**	18.66
Purge Start	11:00	**Pump Intake (ft-bmp)**	190.45	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	12:20	**Volumes Purged**	0.17	**Sample ID**	MW-19-118D_052024	**Sampled by**	Donald Richmond
Sample Time	12:05	**Gallons Purged**	3.17	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
11:30	0	0	200	78.11	1.59	7.35	1.967	40.71	4.27	30.2	191.1	Clear	None
11:35	5	5	200	78.11	1.85	7.35	1.969	37.29	4.15	30.3	186.5	Clear	None
11:40	5	10	200	78.11	2.11	7.36	1.987	49.35	4.62	30.9	179.2	Clear	None
11:45	5	15	200	78.11	2.38	7.36	2.004	37.61	4.1	31.3	173.6	Clear	None
11:50	5	20	200	78.11	2.64	7.36	2.009	41.97	4.03	31.5	172.1	Clear	None
11:55	5	25	200	78.11	2.91	7.36	2.033	77	3.96	32	174.8	Clear	None
12:00	5	30	200	78.11	3.17	7.36	1.993	68	3.95	30.8	177.1	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 522	250 mL Glass	2	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-19-119D			**Date**	5/20/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	73.0 degrees F and Clear. The wind is blowing S at 5.8 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	84.55	**Total Depth (ft-bmp)**	197.9	**Water Column (ft)**	113.35	**Gallons in Well**	18.42
Purge Start	10:35	**Pump Intake (ft-bmp)**	195.5	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	11:00	**Volumes Purged**	0.04	**Sample ID**	MW-19-119D_052024	**Sampled by**	Billy Cobern
Sample Time	11:00	**Gallons Purged**	0.66	**Replicate/ Code No.**	DUP-10_052024	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
10:40	0	0	100	84.87	0.13	7.15	1.261	8.56	5.57	22.7	65.1	Clear	None
10:45	5	5	100	84.87	0.26	7.17	1.257	8.09	5.48	22.7	65.5	Clear	None
10:50	5	10	100	84.87	0.40	7.18	1.256	9.02	5.49	22.7	66	Clear	None
10:55	5	15	100	84.87	0.53	7.19	1.256	9.23	5.58	22.6	66.5	Clear	None
11:00	5	20	100	84.87	0.66	7.2	1.261	9.62	5.65	22.3	67.4	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 522	250 mL Amber	4	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-19-119S			**Date**	5/20/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	78.1 degrees F and Clear. The wind is blowing S at 8.1 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	70.96	**Total Depth (ft-bmp)**	163.9	**Water Column (ft)**	92.94	**Gallons in Well**	15.10
Purge Start	12:25	**Pump Intake (ft-bmp)**	161.5	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	13:00	**Volumes Purged**	0.06	**Sample ID**	MW-19-119S_052024	**Sampled by**	Billy Cobern
Sample Time	13:00	**Gallons Purged**	0.92	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
12:30	0	0	100	71.27	0.13	7.18	1.269	5.28	3.49	21.8	87.4	Clear	None
12:35	5	5	100	71.27	0.26	7.18	1.28	6.78	4.13	22.8	87	Clear	None
12:40	5	10	100	71.27	0.40	7.13	1.298	7.89	3.4	22.4	86.9	Clear	None
12:45	5	15	100	71.27	0.53	7.13	1.324	8.91	1.77	22.6	75.7	Clear	None
12:50	5	20	100	71.27	0.66	7.12	1.325	9.12	1.62	22.7	73.5	Clear	None
12:55	5	25	100	71.27	0.79	7.12	1.326	9.27	1.5	22.8	71.2	Clear	None
13:00	5	30	100	71.27	0.92	7.12	1.328	9.56	1.48	22.9	68.9	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
1,4-Dioxane 522	250 mL Amber	2	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot

1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3

Condition of Well: Good condition

Well Completion: Stick-up

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-19-120			**Date**	5/14/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	57.0 degrees F and Cloudy. The wind is blowing NE at 10.3 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	67.06	**Total Depth (ft-bmp)**	74.72	**Water Column (ft)**	7.66	**Gallons in Well**	1.24
Purge Start	15:37	**Pump Intake (ft-bmp)**	73	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	16:50	**Volumes Purged**	2.42	**Sample ID**	MW-19-120_051424	**Sampled by**	Jarrett Humpula
Sample Time	16:45	**Gallons Purged**	3	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
15:41	0	0	150	67.06	0.16	7.28	1.334	2125.54	5.66	16.6	172.9	Clear	None
15:46	5	5	150	67.06	0.36	7.25	1.227	721.08	4.37	16.6	165.1	Clear	None
15:51	5	10	150	67.06	0.55	7.26	1.163	280.64	4.56	16.7	168.7	Clear	None
15:56	5	15	150	67.06	0.75	7.36	1.147	183.41	4.77	16.2	122.7	Clear	None
16:01	5	20	150	67.06	0.95	7.25	1.166	147.98	4.63	16.2	156	Clear	None
16:06	5	25	150	67.06	1.15	7.25	1.174	104.48	4.5	16.3	167.9	Clear	None
16:11	5	30	150	67.06	1.35	7.24	1.193	94.52	4.35	16.2	175	Clear	None
16:16	5	35	150	67.06	1.55	7.24	1.203	93.63	4.24	16	180.2	Clear	None
16:21	5	40	150	67.06	1.74	7.23	1.214	56.19	4.13	16	183.9	Clear	None
16:26	5	45	150	67.06	1.94	7.23	1.219	64.92	4.08	16	186.2	Clear	None
16:31	5	50	150	67.06	2.14	7.23	1.224	58.16	4.06	16	188.5	Clear	None
16:36	5	55	150	67.06	2.34	7.22	1.229	44.17	3.98	17	190.4	Clear	None
16:41	5	60	150	67.06	2.54	7.24	1.22	35.94	4.23	15.2	192.3	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM,VOCs	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-19-121			**Date**	5/14/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	57.0 degrees F and Cloudy. The wind is blowing NE at 8.1 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	66.13	**Total Depth (ft-bmp)**	73.53	**Water Column (ft)**	7.40	**Gallons in Well**	1.20
Purge Start	10:55	**Pump Intake (ft-bmp)**	71.03	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	11:30	**Volumes Purged**	1.54	**Sample ID**	MW-19-121_051424	**Sampled by**	Austin Westhuis
Sample Time	11:25	**Gallons Purged**	1.85	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
11:00	0	0	200	67.20	0.26	6.47	2.427	46.65	0.94	15.3	223.4	Clear	None
11:05	5	5	200	67.28	0.53	6.47	2.414	24.19	1.27	15.2	217.6	Clear	None
11:10	5	10	200	67.34	0.79	6.52	2.41	20.55	1.9	15.1	212.9	Clear	None
11:15	5	15	200	67.36	1.06	6.54	2.408	18.74	2.02	15.1	212.9	Clear	None
11:20	5	20	200	67.36	1.32	6.58	2.4	18.22	2.03	15.1	207.1	Clear	None
11:25	5	25	200	67.37	1.59	6.58	2.4	17.83	2.03	15.1	207.1	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot

1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2

Condition of Well: Good condition

Well Completion: Stick-up

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-19-122			**Date**	5/14/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	54.0 degrees F and Cloudy. The wind is blowing NE at 9.2 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	64.09	**Total Depth (ft-bmp)**	66.75	**Water Column (ft)**	2.66	**Gallons in Well**	0.43
Purge Start	12:25	**Pump Intake (ft-bmp)**	66.25	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	13:10	**Volumes Purged**	5.53	**Sample ID**	MW-19-122_051424	**Sampled by**	Austin Westhuis
Sample Time	13:05	**Gallons Purged**	2.38	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
12:30	0	0	200	64.09	0.26	6.74	4.2	300.98	4.36	15.2	195	Clear	None
12:35	5	5	200	64.09	0.53	6.73	4.146	51.62	3.85	15.1	194.3	Clear	None
12:40	5	10	200	64.09	0.79	6.73	4.128	48.06	3.84	15.1	193.7	Clear	None
12:45	5	15	200	64.09	1.06	6.72	4.072	38.59	3.64	15.1	191.7	Clear	None
12:50	5	20	200	64.09	1.32	6.72	4.026	29.34	3.57	15.1	189.1	Clear	None
12:55	5	25	200	64.09	1.59	6.73	4.021	26.99	3.48	15.2	188.3	Clear	None
13:00	5	30	200	64.09	1.85	6.73	4.018	26.06	3.44	15.1	187.7	Clear	None
13:05	5	35	200	64.09	2.11	6.71	4.016	24.63	3.4	15	183.5	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-19-123			**Date**	5/14/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	57.0 degrees F and Cloudy. The wind is blowing NE at 10.3 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	65.70	**Total Depth (ft-bmp)**	73.9	**Water Column (ft)**	8.20	**Gallons in Well**	1.33
Purge Start	15:15	**Pump Intake (ft-bmp)**	71.4	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	15:50	**Volumes Purged**	1.39	**Sample ID**	MW-19-123_051424	**Sampled by**	Austin Westhuis
Sample Time	15:45	**Gallons Purged**	1.85	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
15:20	0	0	200	67.45	0.26	6.69	1.752	8.62	6.28	14.4	171.5	Clear	None
15:25	5	5	200	67.62	0.53	6.7	1.755	7.88	6.16	15.1	178.1	Clear	None
15:30	5	10	200	67.72	0.79	6.69	1.766	7.11	6.13	15.5	180.6	Clear	None
15:35	5	15	200	67.79	1.06	6.69	1.77	6.77	6.1	15.5	181.9	Clear	None
15:40	5	20	200	67.83	1.32	6.68	1.794	6.09	6.09	15.6	182.6	Clear	None
15:45	5	25	200	67.83	1.59	6.68	1.792	5.89	6.03	15.6	183.2	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-19-124			**Date**	5/14/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	57.0 degrees F and Cloudy. The wind is blowing NE at 10.3 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	66.48	**Total Depth (ft-bmp)**	72.2	**Water Column (ft)**	5.72	**Gallons in Well**	0.93
Purge Start	16:10	**Pump Intake (ft-bmp)**	69.7	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	16:55	**Volumes Purged**	2.56	**Sample ID**	MW-19-124_051424	**Sampled by**	Austin Westhuis
Sample Time	16:50	**Gallons Purged**	2.38	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
16:15	0	0	200	66.48	0.26	6.53	3.046	430.16	1.41	16.5	26.1	Clear	None
16:20	5	5	200	66.48	0.53	6.54	2.99	122.65	0.6	15.8	-10.5	Clear	None
16:25	5	10	200	66.48	0.79	6.54	2.969	57.13	0.47	15.8	-28.4	Clear	None
16:30	5	15	200	66.48	1.06	6.55	2.956	43.8	0.42	15.7	-37.8	Clear	None
16:35	5	20	200	66.48	1.32	6.55	2.947	36.14	0.41	15.7	-40.5	Clear	None
16:40	5	25	200	66.48	1.59	6.55	2.94	32.41	0.39	15.7	-43.4	Clear	None
16:45	5	30	200	66.48	1.85	6.55	2.93	31.36	0.39	15.6	-45.6	Clear	None
16:50	5	35	200	66.48	2.11	6.55	2.92	31.36	0.37	15.5	-47	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-19-125			**Date**	5/20/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	4	**Well Casing Material**	Steel
Static Water Level (ft-bmp)	78.34	**Total Depth (ft-bmp)**	102.36	**Water Column (ft)**	24.02	**Gallons in Well**	15.61
Purge Start	13:00	**Pump Intake (ft-bmp)**	99.86	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	14:00	**Volumes Purged**	0.12	**Sample ID**	MW-19-125_052024	**Sampled by**	Donald Richmond
Sample Time	13:40	**Gallons Purged**	1.85	**Replicate/ Code No.**	MW-19-125_052024	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
13:20	0	0	200	78.34	1.06	10.72	0.684	94	1.56	23.5	47	Clear	None
13:25	5	5	200	78.34	1.32	10.74	0.691	107	1.48	23.4	40.8	Clear	None
13:30	5	10	200	78.34	1.59	10.74	0.689	107	1.42	23.5	37.7	Clear	None
13:35	5	15	200	78.34	1.85	10.74	0.691	110	1.34	23.6	32.8	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 522	250 mL Glass	6	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-20-127			**Date**	5/15/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	48.0 degrees F and Clear. The wind is blowing N/NE at 6.9 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	68.10	**Total Depth (ft-bmp)**	78.7	**Water Column (ft)**	10.60	**Gallons in Well**	1.72
Purge Start	08:50	**Pump Intake (ft-bmp)**	76	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	09:35	**Volumes Purged**	0.69	**Sample ID**	MW-20-127_051524	**Sampled by**	Billy Cobern
Sample Time	09:35	**Gallons Purged**	1.19	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
08:55	0	0	100	68.42	0.13	6.48	3.49	10.73	1.95	14.1	6.2	Clear	None
09:00	5	5	100	68.42	0.26	6.49	3.497	10.32	1.33	14.1	1.7	Clear	None
09:05	5	10	100	68.42	0.40	6.49	3.5	14.08	1.09	14.1	-0.8	Clear	None
09:10	5	15	100	68.42	0.53	6.52	3.498	17.13	0.66	14.2	-7.7	Clear	None
09:15	5	20	100	68.42	0.66	6.53	3.501	19.49	0.52	14.3	-10.3	Clear	None
09:20	5	25	100	68.42	0.79	6.53	3.503	20.58	0.49	14.3	-11.1	Clear	None
09:25	5	30	100	68.42	0.92	6.54	3.502	21.74	0.37	14.4	-13.3	Clear	None
09:30	5	35	100	68.42	1.06	6.54	3.501	21.73	0.36	14.4	-13.6	Clear	None
09:35	5	40	100	68.42	1.19	6.54	3.498	22.06	0.35	14.4	-13.8	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-20-128			**Date**	5/15/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	54.0 degrees F and Mostly Clear. The wind is blowing N/NE at 10.3 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	65.95	**Total Depth (ft-bmp)**	69.6	**Water Column (ft)**	3.65	**Gallons in Well**	0.59
Purge Start	10:00	**Pump Intake (ft-bmp)**	69.5	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	11:00	**Volumes Purged**	2.69	**Sample ID**	MW-20-128_051524	**Sampled by**	Billy Cobern
Sample Time	11:00	**Gallons Purged**	1.59	**Replicate/ Code No.**	DUP-03_051524	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
10:05	0	0	100	66.20	0.13	6.99	3.442	243.86	2.97	15.4	92.4	Clear	None
10:10	5	5	100	66.25	0.26	6.98	3.439	210.97	2.48	15.5	92.5	Clear	None
10:15	5	10	100	66.28	0.40	6.98	3.434	196.47	1.74	15.6	92.4	Clear	None
10:20	5	15	100	66.28	0.53	6.97	3.438	148.67	0.86	16.1	91.3	Clear	None
10:25	5	20	100	66.28	0.66	6.97	3.432	102.57	0.74	16.7	89.5	Clear	None
10:30	5	25	100	66.28	0.79	6.97	3.436	91.98	0.74	16.4	88.1	Clear	None
10:35	5	30	100	66.28	0.92	6.98	3.45	76.17	0.7	16.2	86.8	Clear	None
10:40	5	35	100	66.28	1.06	6.99	3.444	51.27	0.65	16.2	85.6	Clear	None
10:45	5	40	100	66.28	1.19	6.99	3.447	34.11	0.69	16.5	84.2	Clear	None
10:50	5	45	100	66.28	1.32	6.99	3.447	28.02	0.71	16.9	83.6	Clear	None
10:55	5	50	100	66.28	1.45	6.99	3.448	30.08	0.72	16.9	83.6	Clear	None
11:00	5	55	100	66.28	1.59	6.99	3.45	35.96	0.72	16.9	83.5	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	6	HCL

Comments: Turbidity didn't stabilize within 60 minutes

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Well Locked at Arrival: yes
Condition of Well: Good condition
Well Locked at Departure: yes
Well Completion: Stick-up
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-20-129			**Date**	5/15/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	68.0 degrees F and Cloudy. The wind is blowing N at 10.3 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	61.69	**Total Depth (ft-bmp)**	70.95	**Water Column (ft)**	9.26	**Gallons in Well**	1.50
Purge Start	15:00	**Pump Intake (ft-bmp)**	68.5	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	15:55	**Volumes Purged**	0.97	**Sample ID**	MW-20-129_051524	**Sampled by**	Billy Cobern
Sample Time	15:55	**Gallons Purged**	1.45	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
15:05	0	0	100	61.99	0.13	7.22	1.473	58.95	8.25	20.7	-50.4	Clear	None
15:10	5	5	100	61.99	0.26	7.04	1.649	75.39	2.84	19.7	-65.9	Clear	None
15:15	5	10	100	61.99	0.40	7.04	1.642	70.36	1.76	20.4	-67	Clear	None
15:20	5	15	100	61.99	0.53	7.02	1.622	69.59	0.95	21.6	-66.4	Clear	None
15:25	5	20	100	61.99	0.66	7.02	1.492	65.74	1.35	22	-54.4	Clear	None
15:30	5	25	100	61.99	0.79	7.01	1.38	59.5	1.95	21.7	-39.1	Clear	None
15:35	5	30	100	61.99	0.92	7.01	1.32	61.02	2.5	21.6	-29.6	Clear	None
15:40	5	35	100	61.99	1.06	7	1.29	61.37	2.86	21.6	-23.6	Clear	None
15:45	5	40	100	61.99	1.19	7	1.29	66.54	2.88	21.5	-23	Clear	None
15:50	5	45	100	61.99	1.32	7	1.298	68.36	2.89	21.5	-22.8	Clear	None
15:55	5	50	100	61.99	1.45	7	1.299	66.31	2.91	21.5	-22.5	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-20-130			**Date**	5/16/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	54.0 degrees F and Clear. The wind is blowing E at 3.4 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	67.20	**Total Depth (ft-bmp)**	69.8	**Water Column (ft)**	2.60	**Gallons in Well**	0.42
Purge Start	09:55	**Pump Intake (ft-bmp)**	69.5	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End		**Volumes Purged**		**Sample ID**	NA	**Sampled by**	Billy Cobern
Sample Time		**Gallons Purged**		**Replicate/ Code No.**	NA	**Sample Type**	

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
10:20	0	0	100	67.20	0.00	0	0	0	0	0	0		

Comments: Bladder pump will not pump water from the well. Tried replacing the tubing and bladder and cleaning the screen and check valves. Heavy iron in well and low water volume

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot

1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2

Condition of Well: Good condition

Well Completion: Stick-up

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-20-131			**Date**	5/22/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	78.1 degrees F and Clear and Windy. The wind is blowing W/SW at 23.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	5.01	**Total Depth (ft-bmp)**	8.63	**Water Column (ft)**	3.62	**Gallons in Well**	0.59
Purge Start	15:09	**Pump Intake (ft-bmp)**	7.5	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	16:16	**Volumes Purged**	3.39	**Sample ID**	MW-20-131_052224	**Sampled by**	Jarrett Humpula
Sample Time	16:15	**Gallons Purged**	2	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
15:12	0	0	150	5.18	0.12	7.08	4.707	175.01	0.98	16.4	193.5	Clear	None
15:17	5	5	150	5.27	0.32	6.96	4.669	47.13	0.11	16.4	154.6	Clear	None
15:22	5	10	150	5.31	0.52	6.96	4.733	23.33	0	16.7	114.9	Clear	None
15:27	5	15	150	5.34	0.71	6.96	4.758	20.38	0	16.9	85.4	Clear	None
15:32	5	20	150	5.35	0.91	6.96	4.795	19.37	0	17.1	63.1	Clear	None
15:37	5	25	150	5.35	1.11	6.96	4.762	25.53	0	16.8	50.2	Clear	None
15:42	5	30	150	5.35	1.31	6.97	4.751	29.52	0	16.6	41.2	Clear	None
15:47	5	35	150	5.35	1.51	6.97	4.726	38.72	0	16.7	33.3	Clear	None
15:52	5	40	150	5.35	1.70	6.97	4.714	49.07	0	16.7	28.8	Clear	None
15:57	5	45	150	5.35	1.90	6.98	4.69	53.1	0	16.5	26.5	Clear	None
16:02	5	50	150	5.35	2.10	6.98	4.634	97.9	0	16.3	24.4	Clear	None
16:07	5	55	150	5.35	2.30	6.99	4.65	80.34	0	16.5	23.2	Clear	None
16:12	5	60	150	5.35	2.50	6.99	4.639	95.91	0	16.5	22.7	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-20-132			**Date**	5/23/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	61.0 degrees F and Clear. The wind is blowing SW at 10.3 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	5.18	**Total Depth (ft-bmp)**	10.8	**Water Column (ft)**	5.62	**Gallons in Well**	0.91
Purge Start	09:20	**Pump Intake (ft-bmp)**	10	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	10:26	**Volumes Purged**	2.42	**Sample ID**	MW-20-132_052324	**Sampled by**	Jarrett Humpula
Sample Time	10:25	**Gallons Purged**	2.2	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
09:23	0	0	150	5.33	0.12	6.98	3.343	111.69	1.09	13.1	-104.5	Clear	None
09:28	5	5	150	5.35	0.32	7.08	3.28	44.93	0.19	13.3	-91.9	Clear	None
09:33	5	10	150	5.35	0.52	7.09	3.194	40.88	0.06	13.3	-75.8	Clear	None
09:38	5	15	150	5.35	0.71	7.08	3.153	55.85	0	13.2	-68.4	Clear	None
09:43	5	20	150	5.35	0.91	7.06	3.052	57.5	0	13	-68.1	Clear	None
09:48	5	25	150	5.35	1.11	7.05	2.997	63	0	13	-69.1	Clear	None
09:53	5	30	150	5.35	1.31	7.04	2.919	54.95	0	13.2	-72.1	Clear	None
09:58	5	35	150	5.35	1.51	7.03	2.892	57.66	0	13	-73.1	Clear	None
10:03	5	40	150	5.35	1.70	7.02	2.906	54.4	0	13.1	-82.8	Clear	None
10:08	5	45	150	5.35	1.90	7.02	2.889	50.14	0	13.2	-76.2	Clear	None
10:13	5	50	150	5.35	2.10	7.02	2.889	55.08	0	13.2	-74	Clear	None
10:18	5	55	150	5.35	2.30	7.02	2.876	72.8	0	13.1	-72.7	Clear	None
10:23	5	60	150	5.35	2.50	7.03	2.887	60.14	0	13.3	-71	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Park outside plant 6
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-21-133			**Date**	5/22/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	73.0 degrees F and Partly Cloudy. The wind is blowing SW at 15.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	8.57	**Total Depth (ft-bmp)**	15	**Water Column (ft)**	6.43	**Gallons in Well**	1.04
Purge Start	09:24	**Pump Intake (ft-bmp)**	13	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	10:27	**Volumes Purged**	1.60	**Sample ID**	MW-21-133_052224	**Sampled by**	Jackie Schulte
Sample Time	10:25	**Gallons Purged**	1.66	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
09:30	0	0	100	9.13	0.16	6.81	1.023	1.69	0.66	14.5	192.2	Clear	None
09:35	5	5	100	9.31	0.29	6.8	1.013	2.82	0.5	15.7	188.2	Clear	None
09:40	5	10	100	9.52	0.42	6.83	1.019	4.89	0.28	14.9	185.6	Clear	None
09:45	5	15	100	9.66	0.55	6.84	1.02	8.09	0.22	15.3	184.1	Clear	None
09:50	5	20	100	9.74	0.69	6.84	1.023	12.21	0.19	15.1	182.9	Clear	None
09:55	5	25	100	9.87	0.82	6.84	1.017	4.96	0.25	15.1	182.2	Clear	None
10:00	5	30	100	9.87	0.95	6.84	1.017	4.59	0.22	14.9	180.7	Clear	None
10:05	5	35	100	10.07	1.08	6.84	1.017	1.73	0.08	14.8	177.8	Clear	None
10:10	5	40	100	10.20	1.22	6.8	1.018	1.93	0.02	14.4	175.6	Clear	None
10:15	5	45	100	10.32	1.35	6.78	1.017	1.84	0	14.1	174	Clear	None
10:20	5	50	100	10.40	1.48	6.78	1.016	1.89	0	14.3	172.3	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments: Well, it was only labeled on the plug. Added label to well exterior and inside lid in case plug is lost.

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-21-134			**Date**	5/22/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	75.0 degrees F and Mostly Cloudy.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	8.32	**Total Depth (ft-bmp)**	16	**Water Column (ft)**	7.68	**Gallons in Well**	1.25
Purge Start	10:56	**Pump Intake (ft-bmp)**	13	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	11:55	**Volumes Purged**	1.25	**Sample ID**	MW-21-134_052224	**Sampled by**	Jackie Schulte
Sample Time	11:50	**Gallons Purged**	1.56	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
11:00	0	0	100	8.75	0.11	6.99	0.866	1.77	1.96	14.8	234	Clear	None
11:05	5	5	100	9.11	0.24	6.93	0.862	3.02	1.01	14.3	233.4	Clear	None
11:10	5	10	100	9.36	0.37	6.91	0.857	3.08	0.83	15	232.3	Clear	None
11:15	5	15	100	9.51	0.50	6.9	0.865	2.57	0.78	14.6	231.9	Clear	None
11:20	5	20	100	9.72	0.63	6.91	0.858	3.4	0.73	14.3	231.5	Clear	None
11:25	5	25	100	9.92	0.77	6.9	0.857	3.26	0.76	14.5	231.2	Clear	None
11:30	5	30	100	9.92	0.90	6.89	0.858	2.76	0.84	15.6	230.8	Clear	None
11:35	5	35	100	9.92	1.03	6.89	0.866	5	0.63	14.9	230.2	Clear	None
11:40	5	40	100	9.92	1.16	6.89	0.864	4.98	0.68	14.9	229.3	Clear	None
11:45	5	45	100	10.16	1.29	6.9	0.866	4.68	0.67	14.2	229.2	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments: Label has worn away everywhere, but on the Jay plug. I re-labeled the outside and inner-lid.

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-21-135			**Date**	5/22/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	77.0 degrees F and Clear. The wind is blowing W/SW at 17.2 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	24.98	**Total Depth (ft-bmp)**	27	**Water Column (ft)**	2.02	**Gallons in Well**	0.33
Purge Start	12:42	**Pump Intake (ft-bmp)**	26	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	13:50	**Volumes Purged**	5.03	**Sample ID**	MW-21-135_052224	**Sampled by**	Jackie Schulte
Sample Time	13:45	**Gallons Purged**	1.66	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
12:50	0	0	100	25.41	0.21	7.42	0.86	4.74	1.96	17.2	192.5	Clear	None
12:55	5	5	100	25.67	0.34	7.83	0.841	3.35	1.13	15.9	195.7	Clear	None
13:00	5	10	100	25.81	0.48	7.61	0.839	3.68	1.17	16.2	199.5	Clear	None
13:05	5	15	100	25.93	0.61	7.54	0.84	3.86	1.13	16.1	202.4	Clear	None
13:10	5	20	100	25.99	0.74	7.43	0.841	4.12	0.92	16.2	203.9	Clear	None
13:15	5	25	100	26.08	0.87	7.34	0.845	4.31	0.7	16.3	201.2	Clear	None
13:20	5	30	100	26.14	1.00	7.35	0.845	4.43	0.61	16.2	199.9	Clear	None
13:25	5	35	100	26.19	1.14	7.33	0.846	4.35	0.54	16.4	197.5	Clear	None
13:30	5	40	100	26.23	1.27	7.3	0.843	4.35	0.51	16.2	195.3	Clear	None
13:35	5	45	100	26.24	1.40	7.28	0.85	4.39	0.45	16.5	187.6	Clear	None
13:40	5	50	100	26.24	1.53	7.26	0.85	3.58	0.55	16.4	107.2	Clear	None
13:45	5	55	100	26.27	1.66	7.14	0.854	3.4	0.38	16.3	31.1	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments: Label has worn off everywhere except the J plug. Added labels to the outside and inside the lid. Well did not stabilize after 60 minute purge.

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-21-136			**Date**	5/22/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	77.0 degrees F and Mostly Clear.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	6.97	**Total Depth (ft-bmp)**	14	**Water Column (ft)**	7.03	**Gallons in Well**	1.14
Purge Start	14:30	**Pump Intake (ft-bmp)**	12	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	15:35	**Volumes Purged**	1.51	**Sample ID**	MW-21-136_052224	**Sampled by**	Jackie Schulte
Sample Time	15:30	**Gallons Purged**	1.72	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
14:35	0	0	100	7.54	0.13	7.35	0.91	2.44	0.82	14.5	206.4	Clear	None
14:40	5	5	100	7.99	0.26	7.22	0.904	2.06	0.31	14.5	202.8	Clear	None
14:45	5	10	100	8.40	0.40	7.19	0.902	3.49	0.2	14.8	197.7	Clear	None
14:50	5	15	100	8.69	0.53	7.18	0.902	2.85	0.19	15.3	193.3	Clear	None
14:55	5	20	100	9.07	0.66	7.17	0.891	3.37	0.21	14.5	181.3	Clear	None
15:00	5	25	100	9.02	0.79	7.16	0.888	4.39	0.4	14.8	155.9	Clear	None
15:05	5	30	100	8.99	0.92	7.15	0.885	5.3	0.66	14.8	137.4	Clear	None
15:10	5	35	100	8.99	1.06	7.15	0.89	5.81	0.83	14.8	100.8	Clear	None
15:15	5	40	100	8.99	1.19	7.15	0.895	2.4	0.77	14.6	63.5	Clear	None
15:20	5	45	100	9.08	1.32	7.15	0.891	2.95	0.68	14.4	43.1	Clear	None
15:25	5	50	100	9.19	1.45	7.14	0.893	2.88	0.61	14.7	26	Clear	None
15:30	5	55	100	9.27	1.59	7.18	0.898	3.71	0.52	14.9	12.6	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments: Well did not stabilize after 60 minutes of purging.

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: South of plant 6
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-21-137			**Date**	5/23/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	9.11	**Total Depth (ft-bmp)**	12	**Water Column (ft)**	2.89	**Gallons in Well**	0.47
Purge Start	09:00	**Pump Intake (ft-bmp)**	11	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	09:40	**Volumes Purged**	0.13	**Sample ID**	MW-21-137_052324	**Sampled by**	Jackie Schulte
Sample Time	09:35	**Gallons Purged**	0.06	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
09:05	0	0	100	9.20	0.13	6.58	1.113	9.23	2.21	12.5	208.4	Clear	None
09:10	5	5	100	9.20	0.26	6.6	1.13	7.22	1.94	12.8	205.6	Clear	None
09:15	5	10	100	9.20	0.40	6.63	1.134	5	2.2	13.1	206.9	Clear	None
09:20	5	15	100	9.20	0.53	6.66	1.15	3.55	2.38	13.2	209.5	Clear	None
09:25	5	20	100	9.20	0.66	6.66	1.157	3.43	2.34	13	210.5	Clear	None
09:30	5	25	100	9.21	0.79	6.68	1.153	3.11	2.33	12.9	209.2	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: South of plant 6
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-21-138			**Date**	5/23/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	68.0 degrees F and Clear. The wind is blowing SW at 8.1 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	21.32	**Total Depth (ft-bmp)**	29	**Water Column (ft)**	7.68	**Gallons in Well**	1.25
Purge Start	09:50	**Pump Intake (ft-bmp)**	26	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	11:15	**Volumes Purged**	1.80	**Sample ID**	MW-21-138_052324	**Sampled by**	Jackie Schulte
Sample Time	10:55	**Gallons Purged**	2.25	**Replicate/ Code No.**	MW-21-138_052324	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
09:55	0	0	100	21.59	0.13	6.96	1.647	4.13	3.03	18.7	252.2	Clear	None
10:00	5	5	100	21.92	0.26	6.91	1.65	3.15	0.72	14.4	240.4	Clear	None
10:05	5	10	100	22.21	0.40	6.87	1.641	2.74	0.49	14.2	220.3	Clear	None
10:10	5	15	100	22.47	0.53	6.85	1.642	2.46	0.37	14.2	192.6	Clear	None
10:15	5	20	100	22.72	0.66	6.85	1.645	2.28	0.34	14.1	167	Clear	None
10:20	5	25	100	23.00	0.79	6.85	1.629	2.16	0.34	14.5	136.4	Clear	None
10:25	5	30	100	23.21	0.92	6.84	1.643	2.15	0.27	14.3	121.5	Clear	None
10:30	5	35	100	23.47	1.06	6.84	1.635	2.48	0.26	14.1	92.4	Clear	None
10:35	5	40	100	23.74	1.19	6.83	1.627	2.59	0.25	14.1	63.3	Clear	None
10:40	5	45	100	23.88	1.32	6.81	1.564	2.85	1.21	14.7	27.3	Clear	None
10:47	7	52	100	24.02	1.51	6.83	1.591	2.75	1.43	15.6	31.6	Clear	None
10:50	3	55	100	24.04	1.59	6.85	1.641	2.45	0.76	14.1	34	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	6	None

Comments: Well did not stabilize after 60 minute purge. Well did not meet draw down requirements.

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: South of plant 6
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-21-139			**Date**	5/16/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	73.9 degrees F and Clear. The wind is blowing undefined at 0.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	3.08	**Total Depth (ft-bmp)**	15.36	**Water Column (ft)**	12.28	**Gallons in Well**	2.00
Purge Start	15:15	**Pump Intake (ft-bmp)**	13	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	16:30	**Volumes Purged**	2.00	**Sample ID**	MW-21-139_051624	**Sampled by**	Ellen Redner
Sample Time	16:20	**Gallons Purged**	4.0	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate gal/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
15:20	0	0	0.1	4.98	0.4	7.85	1.401	29.7	1.27	15.4	98.1	Clear	None
15:25	5	5	0.05	5.00	0.75	7.7	1.299	13.9	1.07	15.5	74.3	Clear	None
15:30	5	10	0.05	5.03	1	7.63	1.188	5.3	0.56	14.9	9.7	Clear	None
15:35	5	15	0.05	5.11	1.25	7.6	1.172	5	0.47	15.2	-39.9	Clear	None
15:40	5	20	0.05	5.19	1.5	7.6	1.174	4.19	0.48	14.8	-59.3	Clear	None
15:45	5	25	0.05	5.21	1.75	7.59	1.175	3.9	0.46	14.7	-66.6	Clear	None
15:50	5	30	0.05	5.29	2	7.59	1.175	3.94	0.42	14.5	-73	Clear	None
15:55	5	35	0.05	5.34	2.25	7.56	1.162	3.4	0.3	14.4	-78.2	Clear	None
16:00	5	40	0.05	5.38	2.5	7.57	1.173	3.84	0.34	14.8	-80.7	Clear	None
16:05	5	45	0.05	5.41	2.75	7.56	1.17	3.61	0.32	14.7	-82.8	Clear	None
16:10	5	50	0.05	5.43	3	7.55	1.167	3.47	0.26	14.7	-85.5	Clear	None
16:15	5	55	0.05	5.46	3.25	7.56	1.171	3.92	0.28	14.5	-86.4	Clear	None
16:20	5	60	0.05	5.40	3.5	7.55	1.167	3.83	0.25	14.3	-87	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL
PFAS	250mL HDPE Plastic	2	None

Comments: DO did not stabilize.

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location:
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-21-140			**Date**	5/16/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	60.1 degrees F and Clear. The wind is blowing at 5.8 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	68.71	**Total Depth (ft-bmp)**	75.95	**Water Column (ft)**	7.24	**Gallons in Well**	1.18
Purge Start	10:55	**Pump Intake (ft-bmp)**	73.5	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	11:45	**Volumes Purged**	1.12	**Sample ID**	MW-21-140_051624	**Sampled by**	Billy Cobern
Sample Time	11:45	**Gallons Purged**	1.32	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
11:00	0	0	100	68.80	0.13	6.97	0.89	516.46	1.16	15.7	10.9	Gray	None
11:05	5	5	100	68.80	0.26	6.96	0.889	421.35	0.99	16.2	0.7	Gray	None
11:10	5	10	100	68.80	0.40	6.96	0.886	489.36	1.53	15.9	1.5	Gray	None
11:15	5	15	100	68.80	0.53	6.99	0.895	169.75	4.13	16.3	25.9	Gray	None
11:20	5	20	100	68.80	0.66	6.94	0.888	144.36	0.77	16.1	-3.3	Gray	None
11:25	5	25	100	68.80	0.79	6.93	0.889	111.64	0.55	16.2	-16	Gray	None
11:30	5	30	100	68.80	0.92	6.93	0.891	89.12	0.47	16.4	-23.5	Gray	None
11:35	5	35	100	68.80	1.06	6.93	0.892	83.05	0.41	16.4	-30.2	Gray	None
11:40	5	40	100	68.80	1.19	6.92	0.893	76.47	0.39	16.5	-34.2	Gray	None
11:45	5	45	100	68.80	1.32	6.92	0.892	77.79	0.38	16.5	-38.1	Gray	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-21-141			**Date**	5/22/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	4	**Well Casing Material**	Steel
Static Water Level (ft-bmp)	77.40	**Total Depth (ft-bmp)**	79.72	**Water Column (ft)**	2.32	**Gallons in Well**	1.51
Purge Start	15:40	**Pump Intake (ft-bmp)**	77.22	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	16:50	**Volumes Purged**	2.10	**Sample ID**	MW-21-141_052224	**Sampled by**	Donald Richmond
Sample Time	16:40	**Gallons Purged**	3.17	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
15:45	0	0	200	77.40	0.26	6.85	1.124	30	3.81	22	-45	Clear	None
15:50	5	5	200	77.40	0.53	6.67	1.01	13	1.28	19.6	-61.8	Clear	None
15:55	5	10	200	77.40	0.79	6.69	0.996	8.29	1.01	19.4	-67.5	Clear	None
16:00	5	15	200	77.40	1.06	6.71	0.99	8.67	0.85	19.5	-75.4	Clear	None
16:05	5	20	200	77.40	1.32	6.72	0.973	7.71	0.79	19.2	-76.4	Clear	None
16:10	5	25	200	77.40	1.59	6.72	0.974	7.51	0.66	19.4	-80.1	Clear	None
16:15	5	30	200	77.40	1.85	6.73	0.959	6.88	0.62	19.1	-82.5	Clear	None
16:20	5	35	200	77.40	2.11	6.73	0.965	7.73	0.41	19.6	-84.6	Clear	None
16:25	5	40	200	77.40	2.38	6.74	0.94	7.93	0.42	18.8	-84.7	Clear	None
16:30	5	45	200	77.40	2.64	6.74	0.924	7.87	0.29	18.7	-85.5	Clear	None
16:35	5	50	200	77.40	2.91	6.74	0.923	8.46	0.3	18.8	-86.8	Clear	None
16:40	5	55	200	77.40	3.17	6.81	0.933	9.32	0.29	19.2	-88	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-21-142			**Date**	5/15/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	48.0 degrees F and Clear. The wind is blowing N/NE at 6.9 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	66.92	**Total Depth (ft-bmp)**	79.39	**Water Column (ft)**	12.47	**Gallons in Well**	2.03
Purge Start	09:05	**Pump Intake (ft-bmp)**	78.5	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	10:18	**Volumes Purged**	1.72	**Sample ID**	MW-21-142_051524	**Sampled by**	Jarrett Humpula
Sample Time	10:15	**Gallons Purged**	3.5	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
09:10	0	0	150	66.98	0.20	6.55	2.289	4260.95	1.64	13.4	119.5	Brown	None
09:15	5	5	150	66.98	0.40	6.59	2.278	2622.47	0.23	13.3	48.2	Brown	None
09:20	5	10	150	66.98	0.59	6.6	2.269	4906.35	0.06	13.4	49.7	Brown	None
09:25	5	15	150	66.98	0.79	6.61	2.259	5452.78	-0.04	13.4	62.1	Brown	None
09:30	5	20	150	66.98	0.99	6.62	2.204	1544.38	-0.12	13.4	43.5	Brown	None
09:35	5	25	150	66.98	1.19	6.62	2.193	848.64	-0.12	13.3	37.7	Brown	None
09:40	5	30	150	66.98	1.39	6.63	2.167	829.73	-0.15	13.4	24.4	Brown	None
09:45	5	35	150	66.98	1.59	6.63	2.149	360.81	-0.18	13.4	15	Brown	None
09:50	5	40	150	66.98	1.78	6.63	2.134	261.84	-0.2	13.4	9.7	Brown	None
09:55	5	45	150	66.98	1.98	6.63	2.124	334.64	-0.22	13.4	6.1	Brown	None
10:00	5	50	150	66.98	2.18	6.64	2.123	663.61	-0.22	13.4	4	Brown	None
10:05	5	55	150	66.98	2.38	6.64	2.115	430.93	-0.24	13.3	2.5	Brown	None
10:10	5	60	150	66.98	2.58	6.64	2.107	320.75	-0.24	13.4	1	Brown	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-143			**Date**	5/22/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	77.0 degrees F and Clear. The wind is blowing W/SW at 17.2 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	16.48	**Total Depth (ft-bmp)**	31	**Water Column (ft)**	14.52	**Gallons in Well**	2.36
Purge Start	12:45	**Pump Intake (ft-bmp)**	28.5	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	13:25	**Volumes Purged**	0.45	**Sample ID**	MW-22-143_052224	**Sampled by**	Billy Cobern
Sample Time	13:25	**Gallons Purged**	1.06	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
12:50	0	0	100	16.59	0.13	6.92	2.826	18.97	2.59	16.8	102	Clear	None
12:55	5	5	100	16.63	0.26	6.95	2.855	16.68	0.91	17	97.1	Clear	None
13:00	5	10	100	16.65	0.40	6.98	2.866	13.31	0.4	16.9	84.4	Clear	None
13:05	5	15	100	16.65	0.53	6.99	2.863	10.09	0.41	17.2	43.9	Clear	None
13:10	5	20	100	16.65	0.66	7	2.864	8.89	0.4	16.7	12.9	Clear	None
13:15	5	25	100	16.65	0.79	7	2.873	8.72	0.42	16.8	4.5	Clear	None
13:20	5	30	100	16.65	0.92	7	2.867	8.27	0.43	17	2.4	Clear	None
13:25	5	35	100	16.65	1.06	7	2.869	8.09	0.44	16.9	0.1	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-144			**Date**	5/22/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	78.1 degrees F and Clear and Windy. The wind is blowing W/SW at 23.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	10.61	**Total Depth (ft-bmp)**	24.5	**Water Column (ft)**	13.89	**Gallons in Well**	2.26
Purge Start	15:15	**Pump Intake (ft-bmp)**	22	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	15:45	**Volumes Purged**	0.35	**Sample ID**	MW-22-144_052224	**Sampled by**	Billy Cobern
Sample Time	15:45	**Gallons Purged**	0.79	**Replicate/ Code No.**	DUP-14_052224	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
15:20	0	0	100	10.91	0.13	7.16	1.202	26.74	1.62	15.7	106.9	Clear	None
15:25	5	5	100	10.91	0.26	7.16	1.189	25.35	1.06	15.7	89.5	Clear	None
15:30	5	10	100	10.91	0.40	7.15	1.203	17.42	0.74	15.5	66.8	Clear	None
15:35	5	15	100	10.91	0.53	7.15	1.213	16.78	0.57	15.4	52.8	Clear	None
15:40	5	20	100	10.91	0.66	7.14	1.212	15.78	0.55	15.3	50.3	Clear	None
15:45	5	25	100	10.91	0.79	7.14	1.212	15.63	0.53	15.3	48.4	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	4	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-145			**Date**	5/22/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	78.1 degrees F and Clear and Windy. The wind is blowing W/SW at 21.9 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	10.21	**Total Depth (ft-bmp)**	15	**Water Column (ft)**	4.79	**Gallons in Well**	0.78
Purge Start	16:05	**Pump Intake (ft-bmp)**	13	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	16:30	**Volumes Purged**	0.85	**Sample ID**	MW-22-145_052224	**Sampled by**	Billy Cobern
Sample Time	16:30	**Gallons Purged**	0.66	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
16:10	0	0	100	10.35	0.13	7.04	0.925	8.48	3.22	17.3	123.4	Clear	None
16:15	5	5	100	10.30	0.26	7.05	0.921	7.68	2.63	17.3	120.2	Clear	None
16:20	5	10	100	10.30	0.40	7.05	0.918	7.49	2.51	17.2	118.7	Clear	None
16:25	5	15	100	10.30	0.53	7.05	0.917	7.13	2.42	17.2	117.3	Clear	None
16:30	5	20	100	10.30	0.66	7.06	0.917	7.28	2.33	17.1	115.3	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-146			**Date**	5/22/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	78.1 degrees F and Clear.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	4.38	**Total Depth (ft-bmp)**	10.5	**Water Column (ft)**	6.12	**Gallons in Well**	0.99
Purge Start	18:15	**Pump Intake (ft-bmp)**	8	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	18:45	**Volumes Purged**	0.80	**Sample ID**	MW-22-146_052224	**Sampled by**	Billy Cobern
Sample Time	18:45	**Gallons Purged**	0.79	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
18:20	0	0	100	4.70	0.13	7.28	0.959	60.68	4.93	13.4	106.1	Clear	None
18:25	5	5	100	4.70	0.26	7.28	0.947	36.21	4	13.2	107.8	Clear	None
18:30	5	10	100	4.70	0.40	7.28	0.944	23.28	3.76	13.1	108.5	Clear	None
18:35	5	15	100	4.70	0.53	7.28	0.941	8.09	3.66	12.9	109	Clear	None
18:40	5	20	100	4.70	0.66	7.28	0.941	8.24	3.62	12.8	109.7	Clear	None
18:45	5	25	100	4.70	0.79	7.27	0.938	8.75	3.58	12.9	111.3	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-147			**Date**	5/23/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	61.0 degrees F and Clear. The wind is blowing SW at 10.3 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	9.03	**Total Depth (ft-bmp)**	12.2	**Water Column (ft)**	3.17	**Gallons in Well**	0.52
Purge Start	09:45	**Pump Intake (ft-bmp)**	11.5	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	10:20	**Volumes Purged**	1.77	**Sample ID**	MW-22-147_052324	**Sampled by**	Billy Cobern
Sample Time	10:20	**Gallons Purged**	0.92	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
09:50	0	0	100	9.36	0.13	7.03	1.254	42.85	5.31	13.1	172.6	Clear	None
09:55	5	5	100	9.35	0.26	7.07	1.244	20.82	4.26	13.1	169.8	Clear	None
10:00	5	10	100	9.35	0.40	7.09	1.255	14.63	4.38	13	168.8	Clear	None
10:05	5	15	100	9.35	0.53	7.09	1.262	10.39	4.41	12.9	167.4	Clear	None
10:10	5	20	100	9.35	0.66	7.1	1.276	8.89	4.42	13	165.1	Clear	None
10:15	5	25	100	9.35	0.79	7.11	1.287	8.68	4.38	12.9	161.3	Clear	None
10:20	5	30	100	9.35	0.92	7.11	1.288	8.41	4.39	13	160.8	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot

1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6

Condition of Well: Good condition

Well Completion: Flush mount

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-148			**Date**	5/23/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	61.0 degrees F and Clear. The wind is blowing SW at 10.3 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	24.74	**Total Depth (ft-bmp)**	29.3	**Water Column (ft)**	4.56	**Gallons in Well**	0.74
Purge Start	08:45	**Pump Intake (ft-bmp)**	28	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	09:35	**Volumes Purged**	1.78	**Sample ID**	MW-22-148_052324	**Sampled by**	Billy Cobern
Sample Time	09:35	**Gallons Purged**	1.32	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
08:50	0	0	100	25.25	0.13	6.41	1.02	88.51	3.18	14.9	202.3	Clear	None
08:55	5	5	100	25.60	0.26	6.7	0.996	70.15	2.58	15.2	191.6	Clear	None
09:00	5	10	100	25.95	0.40	6.81	0.988	63.32	2.25	15.2	191	Clear	None
09:05	5	15	100	26.16	0.53	6.86	0.982	51.73	2.11	15.5	190.4	Clear	None
09:10	5	20	100	26.30	0.66	6.9	0.977	50.74	1.95	15.6	190.3	Clear	None
09:15	5	25	100	26.41	0.79	6.91	0.97	23.07	1.76	15.5	190.4	Clear	None
09:20	5	30	100	26.49	0.92	6.93	0.97	22.02	1.7	15.5	189.9	Clear	None
09:25	5	35	100	26.55	1.06	6.94	0.971	19.04	1.69	15.3	189.1	Clear	None
09:30	5	40	100	26.59	1.19	6.93	0.971	18.7	1.68	15.3	188.9	Clear	None
09:35	5	45	100	26.64	1.32	6.94	0.971	19.8	1.68	15.3	188.7	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None

Comments: Didn't meet drawdown requirements.

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-149			**Date**	5/23/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	68.0 degrees F and Clear. The wind is blowing SW at 8.1 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	5.88	**Total Depth (ft-bmp)**	9.9	**Water Column (ft)**	4.02	**Gallons in Well**	0.65
Purge Start	11:00	**Pump Intake (ft-bmp)**	8.5	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	11:35	**Volumes Purged**	1.42	**Sample ID**	MW-22-149_052324	**Sampled by**	Billy Cobern
Sample Time	11:35	**Gallons Purged**	0.92	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
11:05	0	0	100	6.21	0.13	7.42	0.597	18.68	7.49	14.4	194.8	Clear	None
11:10	5	5	100	6.18	0.26	7.36	0.59	4.08	6.99	15.3	195.3	Clear	None
11:15	5	10	100	6.18	0.40	7.38	0.588	4.04	6.84	16.5	194.6	Clear	None
11:20	5	15	100	6.18	0.53	7.37	0.593	3.92	6.75	17.6	193.3	Clear	None
11:25	5	20	100	6.18	0.66	7.34	0.583	3.94	6.87	14.3	193.8	Clear	None
11:30	5	25	100	6.18	0.79	7.34	0.576	4.24	6.79	14.2	194	Clear	None
11:35	5	30	100	6.18	0.92	7.35	0.576	3.92	6.9	14.4	194.2	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-150			**Date**	5/23/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	71.1 degrees F and Clear. The wind is blowing W/SW at 9.2 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	5.65	**Total Depth (ft-bmp)**	17.95	**Water Column (ft)**	12.30	**Gallons in Well**	2.00
Purge Start	12:05	**Pump Intake (ft-bmp)**	15.5	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	13:00	**Volumes Purged**	0.72	**Sample ID**	MW-22-150_052324	**Sampled by**	Billy Cobern
Sample Time	13:00	**Gallons Purged**	1.45	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
12:10	0	0	100	6.05	0.40	7.23	4.215	19.06	1.91	14.5	56.8	Clear	None
12:15	5	5	100	6.31	0.26	7.26	4.266	14.43	0.68	14.7	-18.8	Clear	None
12:20	5	10	100	6.55	0.40	7.27	4.28	12.77	0.42	14.7	-37.5	Clear	None
12:25	5	15	100	6.77	0.53	7.27	4.285	12.57	0.29	14.7	-46.1	Clear	None
12:30	5	20	100	7.01	0.66	7.28	4.279	15.48	0.14	14.9	-53.8	Clear	None
12:35	5	25	100	7.25	0.79	7.28	4.286	17.31	0.05	15.1	-59.6	Clear	None
12:40	5	30	100	7.44	0.92	7.29	4.285	23.01	0	14.9	-64.9	Clear	None
12:45	5	35	100	7.65	1.06	7.29	4.282	25.46	0	14.8	-65.8	Clear	None
12:50	5	40	100	7.83	1.19	7.29	4.281	6.94	0.1	15	-67.6	Clear	None
12:55	5	45	100	7.99	1.32	7.29	4.283	6.62	0.1	15	-67.8	Clear	None
13:00	5	50	100	8.15	1.45	7.29	4.287	6.71	0.1	15	-68	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None

Comments: Didn't meet drawdown requirements.

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-151			**Date**	5/23/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	72.0 degrees F and Clear. The wind is blowing W at 12.8 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	6.43	**Total Depth (ft-bmp)**	14.95	**Water Column (ft)**	8.52	**Gallons in Well**	1.38
Purge Start	13:25	**Pump Intake (ft-bmp)**	12.5	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	14:05	**Volumes Purged**	0.77	**Sample ID**	MW-22-151_052324	**Sampled by**	Billy Cobern
Sample Time	14:05	**Gallons Purged**	1.06	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
13:30	0	0	100	6.76	0.13	6.87	2.553	31.45	0.66	16.4	-61.4	Clear	None
13:35	5	5	100	6.76	0.26	6.87	2.534	35.09	0.31	16	-62.3	Clear	None
13:40	5	10	100	6.76	0.40	6.87	2.528	43.57	0.07	15.8	-63.4	Clear	None
13:45	5	15	100	6.76	0.53	6.87	2.525	35.39	0.01	15.6	-63.7	Clear	None
13:50	5	20	100	6.76	0.66	6.87	2.525	23.64	0.01	5.4	-63.3	Clear	None
13:55	5	25	100	6.76	0.79	6.87	2.524	18.98	0.01	15.5	-63.6	Clear	None
14:00	5	30	100	6.76	0.92	6.87	2.524	18.16	0.01	15.5	-64.8	Clear	None
14:05	5	35	100	6.76	1.06	6.87	2.523	18.15	0.01	15.5	-63.8	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-152			**Date**	5/23/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	73.9 degrees F and Clear. The wind is blowing W at 12.8 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	7.67	**Total Depth (ft-bmp)**	14.9	**Water Column (ft)**	7.23	**Gallons in Well**	1.17
Purge Start	14:30	**Pump Intake (ft-bmp)**	12.5	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	15:00	**Volumes Purged**	0.68	**Sample ID**	MW-22-152_052324	**Sampled by**	Billy Cobern
Sample Time	15:00	**Gallons Purged**	0.79	**Replicate/ Code No.**	MW-22-152_052324	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
14:35	0	0	100	7.70	0.13	7.16	0.927	7.23	0.51	14.2	8.5	Clear	None
14:40	5	5	100	7.70	0.26	7.15	0.904	4.4	0.18	14.2	-6.4	Clear	None
14:45	5	10	100	7.70	0.40	7.13	0.889	3.88	0.04	14	-10.9	Clear	None
14:50	5	15	100	7.70	0.53	7.13	0.888	4.41	0.01	13.8	-13.1	Clear	None
14:55	5	20	100	7.70	0.66	7.13	0.888	4.32	0.01	13.7	-13.2	Clear	None
15:00	5	25	100	7.70	0.79	7.12	0.887	4.49	0.01	13.6	-13.5	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	6	None
VOCs	40 mL Glass	9	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot

1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6

Condition of Well: Good condition

Well Completion: Flush mount

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-154			**Date**	5/23/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	75.0 degrees F and Clear. The wind is blowing W/SW at 17.2 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	5.24	**Total Depth (ft-bmp)**	10.55	**Water Column (ft)**	5.31	**Gallons in Well**	0.86
Purge Start	15:35	**Pump Intake (ft-bmp)**	8.5	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	16:05	**Volumes Purged**	0.92	**Sample ID**	MW-22-154_052324	**Sampled by**	Billy Cobern
Sample Time	16:05	**Gallons Purged**	0.79	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
15:40	0	0	100	5.44	0.13	6.88	4.959	6.48	0.24	14	81.9	Clear	None
15:45	5	5	100	5.44	0.26	6.89	4.949	5.59	0.11	14.1	70.9	Clear	None
15:50	5	10	100	5.44	0.40	6.9	4.933	4.21	0.01	14.2	58.7	Clear	None
15:55	5	15	100	5.44	0.53	6.92	4.92	3.7	0.01	13.9	48.5	Clear	None
16:00	5	20	100	5.44	0.66	6.93	4.896	3.79	0.01	13.9	44.9	Clear	None
16:05	5	25	100	5.44	0.79	6.93	4.905	3.47	0.01	13.8	44.6	Clear	None

Constituent Sampled	Container	Number	Preservative
VOCs	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-158			**Date**	5/22/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	77.0 degrees F and Mostly Clear.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	12.03	**Total Depth (ft-bmp)**	21	**Water Column (ft)**	8.97	**Gallons in Well**	1.46
Purge Start	13:50	**Pump Intake (ft-bmp)**	17.5	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	14:35	**Volumes Purged**	0.82	**Sample ID**	MW-22-158_052224	**Sampled by**	Billy Cobern
Sample Time	14:35	**Gallons Purged**	1.19	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
13:55	0	0	100	12.23	0.13	7.03	3.564	63.42	1.93	15.9	-1.4	Clear	None
14:00	5	5	100	12.25	0.26	7.03	3.456	54.35	1.42	15.9	-10.4	Clear	None
14:05	5	10	100	12.25	0.40	7.05	3.469	48.17	0.42	15.8	-26.8	Clear	None
14:10	5	15	100	12.25	0.53	7.05	3.458	28.78	0.45	15.7	-32.3	Clear	None
14:15	5	20	100	12.25	0.66	7.05	3.46	17.68	0.47	15.7	-35.3	Clear	None
14:20	5	25	100	12.25	0.79	7.05	3.454	12.21	0.46	15.8	-35.7	Clear	None
14:25	5	30	100	12.25	0.92	7.05	3.456	9.98	0.48	15.8	-35.9	Clear	None
14:30	5	35	100	12.25	1.06	7.05	3.461	9.87	0.46	15.7	-36.2	Clear	None
14:35	5	40	100	12.25	1.19	7.05	3.465	9.74	0.46	15.6	-36.5	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-159			**Date**	5/22/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	78.1 degrees F and Clear and Windy. The wind is blowing W/SW at 23.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	29.79	**Total Depth (ft-bmp)**	29.8	**Water Column (ft)**	0.01	**Gallons in Well**	0.00
Purge Start		**Pump Intake (ft-bmp)**		**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End		**Volumes Purged**		**Sample ID**	NA	**Sampled by**	Billy Cobern
Sample Time		**Gallons Purged**		**Replicate/ Code No.**	NA	**Sample Type**	

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
14:55	0	0	0	29.79	0.00	0	0	0	0	0	0		

Comments: Well is dry, no sample

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot

1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6

Condition of Well: Good condition

Well Completion: Flush mount

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-160			**Date**	5/22/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	78.1 degrees F and Clear.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	12.62	**Total Depth (ft-bmp)**	19	**Water Column (ft)**	6.38	**Gallons in Well**	1.04
Purge Start	17:00	**Pump Intake (ft-bmp)**	16.5	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	17:45	**Volumes Purged**	1.14	**Sample ID**	MW-22-160_052224	**Sampled by**	Billy Cobern
Sample Time	17:45	**Gallons Purged**	1.19	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
17:05	0	0	100	12.71	0.13	6.88	1.186	11.43	1.73	14.6	-53.6	Clear	None
17:10	5	5	100	12.71	0.26	6.9	1.183	8.76	1.41	14.1	-53.5	Clear	None
17:15	5	10	100	12.71	0.40	6.91	1.181	11.02	1.03	13.8	-53.5	Clear	None
17:20	5	15	100	12.71	0.53	6.91	1.177	14.85	1.05	13.6	-53.9	Clear	None
17:25	5	20	100	12.71	0.66	6.91	1.178	14.22	0.88	13.5	-54.1	Clear	None
17:30	5	25	100	12.71	0.79	6.91	1.179	14.43	0.77	13.6	-54.1	Clear	None
17:35	5	30	100	12.71	0.92	6.91	1.178	14.41	0.72	13.5	-54.2	Clear	None
17:40	5	35	100	12.71	1.06	6.91	1.177	15.09	0.7	13.4	-54.3	Clear	None
17:45	5	40	100	12.71	1.19	6.91	1.178	14.87	0.67	13.4	-54.3	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-23			**Date**	5/21/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	81.0 degrees F and Clear. The wind is blowing SW at 6.9 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	49.80	**Total Depth (ft-bmp)**	62.57	**Water Column (ft)**	12.77	**Gallons in Well**	2.08
Purge Start	16:09	**Pump Intake (ft-bmp)**	61	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	17:18	**Volumes Purged**	1.49	**Sample ID**	MW-23_052124	**Sampled by**	Jarrett Humpula
Sample Time	17:15	**Gallons Purged**	3.1	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
16:12	0	0	150	49.80	0.12	10.47	0.402	249.74	1.98	17	26.1	Clear	None
16:17	5	5	150	49.80	0.32	10.03	0.408	55.27	0.51	16.2	16	Clear	None
16:22	5	10	150	49.80	0.52	9.55	0.467	34.41	0.5	16.2	23.8	Clear	None
16:27	5	15	150	49.80	0.71	9.02	0.728	840.34	0.68	16	38.9	Clear	None
16:32	5	20	150	49.80	0.91	8.92	0.879	1528.43	0.59	15.9	45.1	Clear	None
16:37	5	25	150	49.80	1.11	8.57	1.004	932.16	0.62	16.1	57	Clear	None
16:42	5	30	150	49.80	1.31	8.32	1.048	609.41	0.72	15.8	65.2	Clear	None
16:47	5	35	150	49.80	1.51	8.13	1.083	465.02	0.74	16.3	45.8	Clear	None
16:52	5	40	150	49.80	1.70	8.04	1.146	253.36	1.24	15.8	-11.4	Clear	None
16:57	5	45	150	49.80	1.90	7.76	1.168	251.49	1.16	15.9	-90.5	Clear	None
17:02	5	50	150	49.80	2.10	7.61	1.195	257.22	1.03	15.9	-111.1	Clear	None
17:07	5	55	150	49.80	2.30	7.52	1.218	296.57	1.01	16.3	-114.4	Clear	None
17:12	5	60	150	49.80	2.50	7.44	1.212	275.35	0.94	15.9	-113.9	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-91-2R			**Date**	5/22/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	73.0 degrees F and Partly Cloudy. The wind is blowing SW at 15.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	57.42	**Total Depth (ft-bmp)**	84.15	**Water Column (ft)**	26.73	**Gallons in Well**	4.34
Purge Start	08:45	**Pump Intake (ft-bmp)**	81.5	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	09:35	**Volumes Purged**	0.30	**Sample ID**	MW-91-2R_052224	**Sampled by**	Billy Cobern
Sample Time	09:35	**Gallons Purged**	1.32	**Replicate/ Code No.**	DUP-09_052224	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
08:50	0	0	100	57.52	0.13	6.94	1.73	15.56	5.54	19.1	-43.5	Clear	None
08:55	5	5	100	57.55	0.26	6.94	1.754	16.74	3.54	18.3	-70.1	Clear	None
09:00	5	10	100	57.55	0.40	6.99	1.755	7.58	17.7	18.5	-89.7	Clear	None
09:05	5	15	100	57.55	0.53	7.02	1.759	7.31	1.08	18.6	-96.1	Clear	None
09:10	5	20	100	57.55	0.66	7.04	1.761	7.98	0.78	18.5	-99.7	Clear	None
09:15	5	25	100	57.55	0.79	7.05	1.76	7.91	0.55	18.2	-102.3	Clear	None
09:20	5	30	100	57.55	0.92	7.07	1.757	8.09	0.35	18.6	-105.2	Clear	None
09:25	5	35	100	57.55	1.06	7.07	1.759	8.76	0.31	18.6	-106.3	Clear	None
09:30	5	40	100	57.55	1.19	7.07	1.757	8.96	0.3	18.6	-106.5	Clear	None
09:35	5	45	100	57.55	1.32	7.07	1.757	9.18	0.29	18.6	-106.6	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	6	HCL
Hexavalent Chromium SW-846 7196	250 mL Plastic	2	None
PFAS	250 mL Plastic	4	None
Total Metals	125 mL Plastic	2	HNO3

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-91-5			**Date**	5/20/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	63.0 degrees F and Clear. The wind is blowing undefined at 0.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	63.55	**Total Depth (ft-bmp)**	126.35	**Water Column (ft)**	62.80	**Gallons in Well**	10.20
Purge Start	09:00	**Pump Intake (ft-bmp)**	124	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	10:00	**Volumes Purged**	0.16	**Sample ID**	MW-91-5_052024	**Sampled by**	Billy Cobern
Sample Time	10:00	**Gallons Purged**	1.59	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
09:05	0	0	100	63.88	0.13	6.91	0.168	140.47	9.94	16.1	-41.4	Clear	None
09:10	5	5	100	63.88	0.26	6.88	0.162	140.69	8.85	15.4	-47.8	Clear	None
09:15	5	10	100	63.88	0.40	6.88	0.16	139.68	7.29	14.9	-54.7	Clear	None
09:20	5	15	100	63.88	0.53	6.9	0.16	136.37	5.73	14.8	-59.9	Clear	None
09:25	5	20	100	63.88	0.66	6.91	0.16	111.35	4.65	14.6	-64.7	Clear	None
09:30	5	25	100	63.88	0.79	6.93	0.16	97.57	2.02	14.5	-75.8	Clear	None
09:35	5	30	100	63.88	0.92	6.94	0.16	67.63	1.61	14.4	-78.3	Clear	None
09:40	5	35	100	63.88	1.06	6.94	0.16	50.1	1.26	14.4	-81.1	Clear	None
09:45	5	40	100	63.88	1.19	6.94	0.16	35.81	1	14.4	-83.1	Clear	None
09:50	5	45	100	63.88	1.32	6.94	0.16	31.12	0.82	14.4	-84.7	Clear	None
09:55	5	50	100	63.88	1.45	6.94	0.16	25.07	0.89	14.3	-86.2	Clear	None
10:00	5	55	100	63.88	1.59	6.94	0.16	20.15	0.88	14.4	-87.4	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 522	250 mL Amber	2	HCL

Comments: Turbidity didn't stabilize within 60 minutes

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Well Locked at Arrival: no
Condition of Well: Good condition
Well Locked at Departure: no
Well Completion: Flush mount
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-91-6			**Date**	5/24/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	52.0 degrees F and . The wind is blowing undefined at 0.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	62.22	**Total Depth (ft-bmp)**	96.15	**Water Column (ft)**	33.93	**Gallons in Well**	5.51
Purge Start	08:15	**Pump Intake (ft-bmp)**	93.5	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	09:00	**Volumes Purged**	0.22	**Sample ID**	MW-91-6_052424	**Sampled by**	Billy Cobern
Sample Time	09:00	**Gallons Purged**	1.19	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
08:20	0	0	100	62.44	0.13	6.69	1.209	160.22	1.06	15.4	95	Clear	None
08:25	5	5	100	62.44	0.26	6.77	1.275	154.88	0.46	15.5	11.5	Clear	None
08:30	5	10	100	62.44	0.40	6.83	1.702	64.78	0.69	15.6	-60.9	Clear	None
08:35	5	15	100	62.44	0.53	6.69	2.19	28.82	0.67	15.8	-73	Clear	None
08:40	5	20	100	62.44	0.66	6.62	2.348	20.17	0.66	15.9	-69.8	Clear	None
08:45	5	25	100	62.44	0.79	6.59	2.428	30.81	0.67	16	-66.7	Clear	None
08:50	5	30	100	62.44	0.92	6.58	2.456	19.06	0.68	16.2	-65.3	Clear	None
08:55	5	35	100	62.44	1.06	6.57	2.467	20.34	0.69	16.2	-65	Clear	None
09:00	5	40	100	62.44	1.19	6.57	2.471	20.11	0.7	16.2	-65	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 522	250 mL Amber	2	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: no
Well Locked at Departure: no
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MWBP-10-UST5-6			**Date**	5/23/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	71.1 degrees F and Clear. The wind is blowing W/SW at 9.2 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	29.42	**Total Depth (ft-bmp)**	37.2	**Water Column (ft)**	7.78	**Gallons in Well**	1.26
Purge Start	10:53	**Pump Intake (ft-bmp)**	36	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	11:56	**Volumes Purged**	1.59	**Sample ID**	MWBP-10-UST5-6_052324	**Sampled by**	Jarrett Humpula
Sample Time	11:50	**Gallons Purged**	2	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
10:57	0	0	150	29.42	0.16	7.08	3.139	314	1.8	20.2	-88.9	Clear	None
11:02	5	5	150	29.42	0.36	7.08	3.165	199.48	1.32	20.2	-87.6	Clear	None
11:07	5	10	150	29.42	0.55	7.07	3.19	275.6	1.31	20.6	-88.7	Clear	None
11:12	5	15	150	29.42	0.75	7.06	3.321	192.2	1.02	19.3	-92.2	Clear	None
11:17	5	20	150	29.42	0.95	7.06	3.341	130.31	1.04	19.3	-90	Clear	None
11:22	5	25	150	29.42	1.15	7.06	3.345	128.81	1.04	19.5	-89.8	Clear	None
11:27	5	30	150	29.42	1.35	7.16	3.371	109.37	1	19.4	-88.5	Clear	None
11:32	5	35	150	29.42	1.55	7.07	3.39	104.2	1.01	19.5	-87.5	Clear	None
11:37	5	40	150	29.42	1.74	7.07	3.416	95.84	0.99	19.5	-82.1	Clear	None
11:42	5	45	150	29.42	1.94	7.07	3.438	100.76	0.99	19.5	-82.9	Clear	None
11:47	5	50	150	29.42	2.14	7.07	3.475	95.64	1.04	19.5	-78.6	Clear	None

Constituent Sampled	Container	Number	Preservative
Dissolved Metals,Total Metals	125 mL Plastic	2	HNO3

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Flush mount

Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MWBP-11-UST1-4			**Date**	5/23/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	71.1 degrees F and Clear. The wind is blowing W/SW at 9.2 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	4	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	1.34	**Total Depth (ft-bmp)**	11.24	**Water Column (ft)**	9.90	**Gallons in Well**	6.43
Purge Start	12:15	**Pump Intake (ft-bmp)**	10.5	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	13:24	**Volumes Purged**	0.36	**Sample ID**	MWBP-11-UST1-4_052324	**Sampled by**	Jarrett Humpula
Sample Time	13:20	**Gallons Purged**	2.3	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
12:19	0	0	150	1.35	0.16	9.03	1.696	8.55	3.76	17.8	155.7	Clear	None
12:24	5	5	150	1.35	0.36	9.03	1.666	16.28	3.26	17.7	158.5	Clear	None
12:29	5	10	150	1.35	0.55	9.06	1.655	25.02	3.09	17.7	114.1	Clear	None
12:34	5	15	150	1.35	0.75	9.02	1.632	44.81	2.92	17.7	136.5	Clear	None
12:39	5	20	150	1.35	0.95	8.98	1.594	53.4	2.69	17.4	145	Clear	None
12:44	5	25	150	1.35	1.15	8.97	1.558	71.06	2.46	17.3	145.9	Clear	None
12:49	5	30	150	1.35	1.35	9	1.505	114.82	2.08	17.2	140.9	Clear	None
12:54	5	35	150	1.35	1.55	8.99	1.488	135.7	1.93	17.3	137.6	Clear	None
12:59	5	40	150	1.35	1.74	8.98	1.466	172.08	1.69	17.2	131.8	Clear	None
13:04	5	45	150	1.35	1.94	8.98	1.454	144.2	1.53	17.3	126.2	Clear	None
13:09	5	50	150	1.35	2.14	8.97	1.437	158.94	1.4	17.1	120.8	Clear	None
13:14	5	55	150	1.35	2.34	8.97	1.43	183.04	1.32	17	116.4	Clear	None
13:19	5	60	150	1.35	2.54	8.97	1.425	198.98	1.22	17	112.2	Clear	None

Constituent Sampled	Container	Number	Preservative
Dissolved Metals,Total Metals	125 mL Plastic	2	HNO3

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MWBP-12-UST1-4			**Date**	5/23/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	73.9 degrees F and Clear. The wind is blowing W at 12.8 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	4	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	2.14	**Total Depth (ft-bmp)**	11.28	**Water Column (ft)**	9.14	**Gallons in Well**	5.94
Purge Start	13:32	**Pump Intake (ft-bmp)**	10.5	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	14:18	**Volumes Purged**	0.42	**Sample ID**	MWBP-12-UST1-4_052324	**Sampled by**	Jarrett Humpula
Sample Time	14:15	**Gallons Purged**	2.5	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
13:36	0	0	150	2.15	0.16	7.84	0.811	5.38	2.31	14.6	166.6	Clear	None
13:41	5	5	150	2.15	0.36	7.68	0.799	5.72	1.88	14.3	171.6	Clear	None
13:46	5	10	150	2.15	0.55	7.68	0.794	8.8	1.81	14.3	175.9	Clear	None
13:51	5	15	150	2.15	0.75	7.67	0.805	11.43	1.8	15.3	179	Clear	None
13:56	5	20	150	2.15	0.95	7.67	0.81	16.39	1.8	15.2	181.8	Clear	None
14:01	5	25	150	2.15	1.15	7.67	0.81	21.72	1.78	15.3	184.9	Clear	None
14:06	5	30	150	2.15	1.35	7.66	0.809	22.41	1.75	15.3	187.3	Clear	None
14:11	5	35	150	2.15	1.55	7.66	0.805	23.74	1.7	15.1	190.3	Clear	None

Constituent Sampled	Container	Number	Preservative
Dissolved Metals,Total Metals	125 mL Plastic	2	HNO3
SVOCs	1L Glass	2	None
VOCs	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	P2-MW-02			**Date**	5/16/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	60.1 degrees F and Clear. The wind is blowing at 5.8 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	36.16	**Total Depth (ft-bmp)**	40.21	**Water Column (ft)**	4.05	**Gallons in Well**	0.66
Purge Start	11:05	**Pump Intake (ft-bmp)**	39	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	11:32	**Volumes Purged**	2.45	**Sample ID**	P2-MW-02_051624	**Sampled by**	Ellen Redner
Sample Time	11:50	**Gallons Purged**	1.62	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate gal/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
11:10	0	0	0.06	36.45	0.3	6.66	1.21	110	1.16	14.2	175.5	Clear	None
11:15	5	5	0.06	36.71	0.6	6.78	1.189	32.7	0.5	14	152	Clear	None
11:20	5	10	0.06	36.90	0.9	6.79	1.189	26.3	0.43	13.9	138.4	Clear	None
11:25	5	15	0.06	39.10	1.2	6.81	1.185	20.5	0.26	13.9	116	Clear	None
11:30	5	20	0.06	39.50	1.5	6.82	1.166	19.4	0.27	13.8	78.7	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments: Waited for recharge and then collected sample.

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: no
Well Locked at Departure: no
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	P2-MW-04			**Date**	5/16/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	66.9 degrees F and Clear. The wind is blowing W/SW at 4.7 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	11.45	**Total Depth (ft-bmp)**	39.5	**Water Column (ft)**	28.05	**Gallons in Well**	4.56
Purge Start	12:55	**Pump Intake (ft-bmp)**	37	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	15:00	**Volumes Purged**	1.37	**Sample ID**	P2-MW-04_051624	**Sampled by**	Ellen Redner
Sample Time	14:00	**Gallons Purged**	6.25	**Replicate/ Code No.**	P2-MW-04_051624	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate gal/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
13:00	0	0	0.05	11.65	0.25	7.14	1.344	129	0.51	13.5	32.9	Clear	None
13:05	5	5	0.05	11.65	0.5	7.15	1.336	94.8	0.19	13.4	-51.3	Clear	None
13:10	5	10	0.05	11.65	0.75	7.15	1.333	80.2	0.17	13.4	-56.1	Clear	None
13:15	5	15	0.05	11.65	1	7.15	1.333	42.3	0.12	13.4	-67.1	Clear	None
13:20	5	20	0.05	11.65	1.25	7.14	1.334	28.6	0.09	13.2	-73.5	Clear	None
13:25	5	25	0.05	11.65	1.5	7.15	1.326	27.6	0.05	13.4	-80.2	Clear	None
13:30	5	30	0.05	11.65	1.75	7.15	1.326	28.4	0.04	13.3	-83.1	Clear	None
13:35	5	35	0.05	11.65	2	7.15	1.327	33.9	0.01	13.2	-88.1	Clear	None
13:40	5	40	0.05	11.65	2.25	7.15	1.327	39.4	0.01	13.2	-89.9	Clear	None
13:45	5	45	0.05	11.66	2.5	7.15	1.33	17.7	0.01	13.5	-93.1	Clear	None
13:50	5	50	0.05	11.67	2.75	7.16	1.329	15.2	0	13.3	-95.9	Clear	None
13:55	5	55	0.05	11.68	3	7.16	1.329	17.4	0	13.3	-98	Clear	None
14:00	5	60	0.05	11.69	3.25	7.2	1.33	18.5	0	13.2	-100	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	9	HCL
PFAS	250mL HDPE Plastic	6	None
SVOCs	1L Amber	6	None

Comments: Turbidity did not stabilize.

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	P3-SB-28			**Date**	5/22/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	75.9 degrees F and Mostly Cloudy. The wind is blowing W/SW at 13.9 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	5.87	**Total Depth (ft-bmp)**	10.37	**Water Column (ft)**	4.50	**Gallons in Well**	0.73
Purge Start	11:30	**Pump Intake (ft-bmp)**	7.87	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	12:10	**Volumes Purged**	2.89	**Sample ID**	P3-SB-28_052224	**Sampled by**	Austin Westhuis
Sample Time	12:00	**Gallons Purged**	2.11	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
11:35	0	0	200	6.18	0.26	7.43	0.488	8.93	0.58	16.5	159.1	Clear	None
11:40	5	5	200	6.23	0.53	7.46	0.472	5.73	0.25	16.7	149.9	Clear	None
11:45	5	10	200	6.23	0.79	7.49	0.462	5.22	0.17	16.8	141.4	Clear	None
11:50	5	15	200	6.23	1.06	7.51	0.455	5.09	0.14	16.9	138.6	Clear	None
11:55	5	20	200	6.23	1.32	7.53	0.448	4.91	0.14	16.8	134.8	Clear	None
12:00	5	25	200	6.24	1.59	7.53	0.446	4.63	0.13	16.9	133	Clear	None

Constituent Sampled	Container	Number	Preservative
SVOCs	1L Amber	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 2035

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	P6-SB-07			**Date**	5/23/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	75.0 degrees F and Clear. The wind is blowing W/SW at 17.2 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	6.82	**Total Depth (ft-bmp)**	23.6	**Water Column (ft)**	16.78	**Gallons in Well**	2.73
Purge Start	14:49	**Pump Intake (ft-bmp)**	22.6	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	15:59	**Volumes Purged**	0.92	**Sample ID**	P6-SB-07_052324	**Sampled by**	Jarrett Humpula
Sample Time	15:55	**Gallons Purged**	2.5	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
14:52	0	0	150	6.82	0.12	7.6	0.649	66.35	2.63	14.5	250.9	Clear	None
14:57	5	5	150	6.82	0.32	7.43	0.627	60.89	0.8	14.2	230	Clear	None
15:02	5	10	150	6.82	0.52	7.39	0.63	70.58	0.41	14.2	60	Clear	None
15:07	5	15	150	6.82	0.71	7.36	0.644	84.57	0.23	14.2	-51.2	Clear	None
15:12	5	20	150	6.82	0.91	7.35	0.645	110.2	0.1	13.9	-71.7	Clear	None
15:17	5	25	150	6.82	1.11	7.33	0.662	151.2	0	14.2	-83	Clear	None
15:22	5	30	150	6.82	1.31	7.32	0.662	184.53	0	13.9	-86.2	Clear	None
15:27	5	35	150	6.82	1.51	7.31	0.673	224.77	0	14.3	-90.1	Clear	None
15:32	5	40	150	6.82	1.70	7.3	0.672	275	0	13.8	-92.7	Clear	None
15:37	5	45	150	6.82	1.90	7.3	0.676	343.6	0	13.9	-94.9	Clear	None
15:42	5	50	150	6.82	2.30	7.3	0.671	330.72	0	13.8	-95.8	Clear	None
15:47	5	55	150	6.82	2.30	7.29	0.679	366.81	0	13.9	-97.5	Clear	None
15:52	5	60	150	6.82	2.23	7.3	0.683	353.31	0	13.9	-98.3	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None
SVOCs	1L Amber	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	PW-14-01			**Date**	5/15/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	59.0 degrees F and Partly Cloudy. The wind is blowing NE at 8.1 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	67.33	**Total Depth (ft-bmp)**	78.9	**Water Column (ft)**	11.57	**Gallons in Well**	1.88
Purge Start	11:00	**Pump Intake (ft-bmp)**	77.5	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	12:15	**Volumes Purged**	1.44	**Sample ID**	PW-14-01_051524	**Sampled by**	Jarrett Humpula
Sample Time	12:10	**Gallons Purged**	2.7	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
11:04	0	0	150	67.33	0.16	6.87	2.918	553.07	7.83	16.6	-55.2	Brown	None
11:09	5	5	150	67.33	0.36	6.88	2.853	233.51	5.81	14.8	-38.2	Brown	None
11:14	5	10	150	67.33	0.55	6.88	2.847	223.57	5.71	14.8	-37.6	Brown	None
11:19	5	15	150	67.33	0.75	6.89	2.834	180.5	5.57	14.8	-35.4	Brown	None
11:24	5	20	150	67.33	0.95	6.91	2.824	183.68	5.51	14.8	-33.4	Brown	None
11:29	5	25	150	67.33	1.15	6.93	2.811	156.89	5.51	14.9	-30.2	Brown	None
11:34	5	30	150	67.33	1.35	6.95	2.796	179.17	5.55	14.9	-24.9	Brown	None
11:39	5	35	150	67.33	1.55	6.96	2.798	182.81	5.54	15	-22	Brown	None
11:44	5	40	150	67.33	1.74	6.96	2.791	218.61	5.6	15	-19.3	Brown	None
11:49	5	45	150	67.33	1.94	6.96	2.78	239.94	5.65	14.9	-17	Brown	None
11:54	5	50	150	67.33	2.14	6.97	2.792	265.2	5.67	15.1	-14.6	Brown	None
11:59	5	55	150	67.33	2.34	6.97	2.802	284.62	5.69	15.4	-13	Brown	None
12:04	5	60	150	67.33	2.54	6.98	2.804	314.75	5.56	15.4	-10.6	Brown	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	PW-14-02			**Date**	5/15/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	64.0 degrees F and Clear. The wind is blowing N/NE at 10.3 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	67.51	**Total Depth (ft-bmp)**	76.8	**Water Column (ft)**	9.29	**Gallons in Well**	1.51
Purge Start	12:42	**Pump Intake (ft-bmp)**	75	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	14:00	**Volumes Purged**	1.72	**Sample ID**	PW-14-02_051524	**Sampled by**	Jarrett Humpula
Sample Time	13:55	**Gallons Purged**	2.6	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
12:50	0	0	150	67.51	0.20	7	2.04	181.57	6.16	17.6	-74.1	Clear	None
12:55	5	5	150	67.51	0.52	6.8	1.853	57.62	1.68	16.6	-28.9	Clear	None
13:00	5	10	150	67.51	0.71	6.79	2.191	32.35	1.19	16.8	-9.2	Clear	None
13:05	5	15	150	67.51	0.91	6.84	1.834	29.22	1.1	16.4	-2.7	Clear	None
13:10	5	20	150	67.51	1.11	6.78	1.836	40.2	1.04	16.4	0.4	Clear	None
13:15	5	25	150	67.51	1.31	6.78	1.844	36.05	1.01	16.5	5.8	Clear	None
13:20	5	30	150	67.51	1.51	6.78	1.842	22.46	1	16.7	8.8	Clear	None
13:25	5	35	150	67.51	1.70	6.78	1.853	52.26	1.02	16.9	12	Clear	None
13:30	5	40	150	67.51	1.90	6.78	1.8551	65.97	1.07	16.9	17.1	Clear	None
13:35	5	45	150	67.51	2.10	6.78	1.85	60.44	1.15	16.9	22.1	Clear	None
13:40	5	50	150	67.51	2.30	6.78	1.85	73.8	1.23	16.9	30.4	Clear	None
13:45	5	55	150	67.51	2.50	6.78	1.844	84.31	1.32	16.8	37.3	Clear	None
13:50	5	60	150	67.51	2.69	6.79	1.848	98.55	1.41	17	52.6	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM,VOCs	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	PW-14-03R			**Date**	5/17/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	6	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	72.12	**Total Depth (ft-bmp)**	94.3	**Water Column (ft)**	22.18	**Gallons in Well**	32.44
Purge Start	10:25	**Pump Intake (ft-bmp)**	91.8	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	11:35	**Volumes Purged**	0.10	**Sample ID**	PW-14-03R_051724	**Sampled by**	Donald Richmond
Sample Time	11:30	**Gallons Purged**	3.17	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
10:35	0	0	200	72.12	0.53	6.17	2.796	33.71	0.81	19.7	238.1	Clear	None
10:40	5	5	200	72.12	0.79	6.16	2.84	56	0.64	20.2	236.5	Clear	None
10:45	5	10	200	72.12	1.06	6.15	2.88	89	0.58	20.7	234.8	Clear	None
10:50	5	15	200	72.12	1.32	6.15	2.9	126.92	0.5	20.8	231.6	Clear	None
10:55	5	20	200	72.12	1.59	6.14	2.912	152	0.45	21	230.4	Clear	None
11:00	5	25	200	72.12	1.85	6.14	2.867	185	0.34	19.7	229.1	Clear	None
11:05	5	30	200	72.12	2.11	6.15	2.822	247	0.34	19.6	227	Clear	None
11:10	5	35	200	72.12	2.38	6.15	2.837	269	0.4	19.7	224.1	Clear	None
11:15	5	40	200	72.12	2.64	6.15	2.935	260	0.43	21.2	218.6	Clear	None
11:20	5	45	200	72.12	2.91	6.14	2.972	257	0.39	21.5	215	Clear	None
11:25	5	50	200	72.12	3.17	6.14	2.991	248	0.38	21.7	213.8	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	TW-14-02			**Date**	5/15/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	64.9 degrees F and Mostly Cloudy. The wind is blowing N at 15.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	61.85	**Total Depth (ft-bmp)**	72.87	**Water Column (ft)**	11.02	**Gallons in Well**	1.79
Purge Start	14:25	**Pump Intake (ft-bmp)**	70.5	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	15:40	**Volumes Purged**	1.34	**Sample ID**	TW-14-02_051524	**Sampled by**	Jarrett Humpula
Sample Time	15:35	**Gallons Purged**	2.4	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
14:33	0	0	150	61.85	0.32	7.11	3.872	153.77	9.13	15.8	218	Clear	None
14:38	5	5	150	61.85	0.52	6.83	3.865	160.25	6.67	15.3	214.4	Clear	None
14:43	5	10	150	61.85	0.71	6.74	3.878	129.14	5.08	15.2	211.7	Clear	None
14:48	5	15	150	61.85	0.91	6.67	3.897	94.62	3.47	15.3	208.9	Clear	None
14:53	5	20	150	61.85	1.11	6.63	3.908	81.21	2.51	15.2	206	Clear	None
14:58	5	25	150	61.85	1.31	6.61	3.911	100.69	1.65	15.1	202	Clear	None
15:03	5	30	150	61.85	1.51	6.61	3.917	123.3	1.39	15.1	199.8	Clear	None
15:08	5	35	150	61.85	1.70	6.6	3.917	118.37	1.33	15.2	199	Clear	None
15:13	5	40	150	61.85	1.90	6.59	3.919	137.32	1.15	15.2	197.3	Clear	None
15:18	5	45	150	61.85	2.10	6.59	3.924	167.98	1.05	15.2	195.8	Clear	None
15:23	5	50	150	61.85	2.30	6.59	3.925	184.15	0.98	15.1	194.6	Clear	None
15:28	5	55	150	61.85	2.50	6.59	3.923	186.1	0.94	15.3	193.9	Clear	None
15:33	5	60	150	61.85	2.69	6.61	3.916	207.57	0.92	15.1	123.9	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM,VOCs	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	TW-15-11			**Date**	5/17/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	71.85	**Total Depth (ft-bmp)**	87.05	**Water Column (ft)**	15.20	**Gallons in Well**	2.47
Purge Start	08:55	**Pump Intake (ft-bmp)**	84.55	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	10:05	**Volumes Purged**	1.28	**Sample ID**	TW-15-11_051724	**Sampled by**	Donald Richmond
Sample Time	10:00	**Gallons Purged**	3.17	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
09:00	0	0	200	71.85	0.26	6.67	2.758	21	1.98	17.5	267.9	Clear	None
09:05	5	5	200	71.85	0.53	6.67	2.671	34	0.59	17.3	259.6	Clear	None
09:10	5	10	200	71.85	0.79	6.67	2.675	42.77	0.45	17.3	254.6	Clear	None
09:15	5	15	200	71.85	1.06	6.67	2.665	61	0.29	17.1	247.6	Clear	None
09:20	5	20	200	71.85	1.32	6.67	2.677	109	0.18	17.2	239.5	Clear	None
09:25	5	25	200	71.85	1.59	6.67	2.696	142	0.16	17.6	234.3	Clear	None
09:30	5	30	200	71.85	1.85	6.67	2.698	155	0.12	17.6	231.9	Clear	None
09:35	5	35	200	71.85	2.11	6.67	2.697	167	0.12	17.6	228.5	Clear	None
09:40	5	40	200	71.85	2.38	6.67	2.71	190	0.09	17.7	224.5	Clear	None
09:45	5	45	200	71.85	2.64	6.67	2.71	204	0.05	17.8	219.5	Clear	None
09:50	5	50	200	71.85	2.91	6.67	2.724	232	0.04	17.7	214	Clear	None
09:55	5	55	200	71.85	3.17	6.68	2.728	271	0.03	17.9	137.5	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	TW-15-12			**Date**	5/16/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	50.0 degrees F and Clear. The wind is blowing undefined at 0.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	4	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	65.84	**Total Depth (ft-bmp)**	77.05	**Water Column (ft)**	11.21	**Gallons in Well**	7.29
Purge Start	08:50	**Pump Intake (ft-bmp)**	74.5	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	09:25	**Volumes Purged**	0.13	**Sample ID**	TW-15-12_051624	**Sampled by**	Billy Cobern
Sample Time	09:25	**Gallons Purged**	0.92	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
08:55	0	0	100	65.97	0.13	7.16	2.704	75.85	9.75	16.7	149.8	Clear	None
09:00	5	5	100	66.05	0.26	6.91	2.786	24.36	8.84	16	169.9	Clear	None
09:05	5	10	100	66.11	0.40	6.88	2.807	15.71	7.71	16.2	177.5	Clear	None
09:10	5	15	100	66.09	0.53	6.87	2.813	14.74	7.26	16.3	181.2	Clear	None
09:15	5	20	100	66.09	0.66	6.87	2.816	11.21	6.92	16.6	185.1	Clear	None
09:20	5	25	100	66.09	0.79	6.87	2.821	11.22	6.82	16.7	187.7	Clear	None
09:25	5	30	100	66.09	0.92	6.87	2.821	11.9	6.75	16.7	190.4	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: no
Well Locked at Departure: no
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	UNK-11			**Date**	5/22/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	75.9 degrees F and Mostly Cloudy. The wind is blowing W/SW at 13.9 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	0.25	**Total Depth (ft-bmp)**	11.82	**Water Column (ft)**	11.57	**Gallons in Well**	1.88
Purge Start	12:20	**Pump Intake (ft-bmp)**	9.32	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	13:05	**Volumes Purged**	1.27	**Sample ID**	UNK-11_052224	**Sampled by**	Austin Westhuis
Sample Time	12:55	**Gallons Purged**	2.38	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
12:25	0	0	200	0.51	0.26	10.36	0.193	184.33	2.44	17.3	37.2	Clear	None
12:30	5	5	200	0.56	0.53	10.26	0.197	63.72	2.37	18.4	39.6	Clear	None
12:35	5	10	200	0.62	0.79	10.19	0.199	43.11	2.22	18.9	41.5	Clear	None
12:40	5	15	200	0.67	1.06	10.16	0.203	33.98	2.24	19	42	Clear	None
12:45	5	20	200	0.71	1.32	10.16	0.206	31.68	2.3	19.7	42.3	Clear	None
12:50	5	25	200	0.73	1.59	10.19	0.209	30.75	2.27	19.6	41	Clear	None
12:55	5	30	200	0.74	1.85	10.22	0.211	30.11	2.25	19.6	39.9	Clear	None

Constituent Sampled	Container	Number	Preservative
SVOCs	1L Amber	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot

1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3

Condition of Well: Good condition

Well Completion: Stick-up

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: 2035

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	UNK-15			**Date**	5/21/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	81.0 degrees F and Clear. The wind is blowing SW at 6.9 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	0.50	**Total Depth (ft-bmp)**	15.08	**Water Column (ft)**	14.58	**Gallons in Well**	2.37
Purge Start	16:25	**Pump Intake (ft-bmp)**	11.58	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	17:05	**Volumes Purged**	0.89	**Sample ID**	UNK-15_052124	**Sampled by**	Austin Westhuis
Sample Time	17:00	**Gallons Purged**	2.11	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
16:30	0	0	200	1.05	0.26	8.01	0.559	7.33	0.22	14.7	86.1	Clear	None
16:35	5	5	200	1.25	0.53	7.95	0.583	7.35	0.16	16.5	81.9	Clear	None
16:40	5	10	200	1.44	0.79	7.98	0.579	6.94	0.16	16.1	80.9	Clear	None
16:45	5	15	200	1.67	1.06	7.97	0.574	4.88	0.15	16	76.9	Clear	None
16:50	5	20	200	1.86	1.32	7.96	0.573	4.23	0.13	16	73.2	Clear	None
16:55	5	25	200	2.02	1.59	7.96	0.57	3.79	0.13	15.8	71.2	Clear	None
17:00	5	30	200	2.17	1.85	7.96	0.568	3.51	0.12	15.8	69.4	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot

1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3

Condition of Well: Good condition

Well Completion: Flush mount

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: 2035

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-20-131			**Date**	8/19/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	68.0 degrees F and Clear. The wind is blowing N at 10.3 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	6.12	**Total Depth (ft-bmp)**	8.64	**Water Column (ft)**	2.52	**Gallons in Well**	0.41
Purge Start	12:50	**Pump Intake (ft-bmp)**	7.64	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	13:25	**Volumes Purged**	4.51	**Sample ID**	MW-20-131_081924	**Sampled by**	Austin Westhuis
Sample Time	13:20	**Gallons Purged**	1.85	**Replicate/ Code No.**	DUP-02_081924	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
12:55	0	0	200	6.12	0.26	6.98	5.26	6.91	1.46	20.1	-13.3	Clear	None
13:00	5	5	200	6.12	0.53	7	5.23	3.14	1.32	20.2	-19.2	Clear	None
13:05	5	10	200	6.12	0.79	6.99	5.22	2.78	1.54	20.2	-20.3	Clear	None
13:10	5	15	200	6.12	1.06	7	5.2	2.44	1.07	20.2	-22.5	Clear	None
13:15	5	20	200	6.12	1.32	7.01	5.17	2.22	1.06	20.1	-23.5	Clear	None
13:20	5	25	200	6.12	1.59	7.01	5.15	1.98	1.03	20.2	-24.7	Clear	None

Constituent Sampled	Container	Number	Preservative
VOCs	40 mL Glass	6	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-20-132			**Date**	8/19/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	63.0 degrees F and Clear. The wind is blowing N at 11.4 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	4.80	**Total Depth (ft-bmp)**	10.81	**Water Column (ft)**	6.01	**Gallons in Well**	0.98
Purge Start	11:40	**Pump Intake (ft-bmp)**	8.31	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	12:25	**Volumes Purged**	2.43	**Sample ID**	MW-20-132_081924	**Sampled by**	Austin Westhuis
Sample Time	12:20	**Gallons Purged**	2.38	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
11:45	0	0	200	5.12	0.26	7.07	4.16	24.9	6.34	17.2	14.4	Clear	None
11:50	5	5	200	5.26	0.53	7.07	4.09	6.88	6.04	17.4	-3.8	Clear	None
11:55	5	10	200	5.29	0.79	7.08	4.09	3.85	5.77	17.4	-46.9	Clear	None
12:00	5	15	200	5.30	1.06	7.08	4.03	2.64	5.54	17.4	-66.7	Clear	None
12:05	5	20	200	5.30	1.32	7.09	3.98	2.11	5.43	17.5	-87.8	Clear	None
12:10	5	25	200	5.30	1.59	7.09	3.93	1.79	5.19	17.5	-99.3	Clear	None
12:15	5	30	200	5.30	1.85	7.1	3.92	1.63	5.13	17.5	-102.2	Clear	None
12:20	5	35	200	5.30	2.11	7.1	3.91	1.43	5.01	17.4	-106.6	Clear	None

Constituent Sampled	Container	Number	Preservative
VOCs	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-143			**Date**	8/20/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	53.1 degrees F and Clear. The wind is blowing N at 5.8 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	16.78	**Total Depth (ft-bmp)**	31	**Water Column (ft)**	14.22	**Gallons in Well**	2.31
Purge Start	09:00	**Pump Intake (ft-bmp)**	28.5	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	09:35	**Volumes Purged**	0.40	**Sample ID**	MW-22-143_082024	**Sampled by**	Billy Cobern
Sample Time	09:35	**Gallons Purged**	0.92	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
09:05	0	0	100	17.08	0.13	7.06	2.64	16.5	0.86	14.5	-6.9	Clear	None
09:10	5	5	100	17.08	0.26	7.06	2.64	13.8	0.51	14.6	-21.1	Clear	None
09:15	5	10	100	17.08	0.40	7.05	2.65	10.7	0.99	14.8	-40	Clear	None
09:20	5	15	100	17.08	0.53	7.05	2.66	9.34	0.33	14.8	-46.2	Clear	None
09:25	5	20	100	17.08	0.66	7.06	2.66	8.89	0.23	14.8	-54.7	Clear	None
09:30	5	25	100	17.08	0.79	7.06	2.66	8.67	0.23	14.8	-58.9	Clear	None
09:35	5	30	100	17.08	0.92	7.06	2.66	8.21	0.24	14.8	-60.7	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6 off site

Well Locked at Arrival: yes

Condition of Well: Good condition

Well Locked at Departure: yes

Well Completion: Flush mount

Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-144			**Date**	8/20/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	59.0 degrees F and Clear. The wind is blowing N at 8.1 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	11.92	**Total Depth (ft-bmp)**	24.5	**Water Column (ft)**	12.58	**Gallons in Well**	2.04
Purge Start	10:55	**Pump Intake (ft-bmp)**	22	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	11:20	**Volumes Purged**	0.32	**Sample ID**	MW-22-144_082024	**Sampled by**	Billy Cobern
Sample Time	11:20	**Gallons Purged**	0.66	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
11:00	0	0	100	12.25	0.13	7.05	1.1	8.79	0.42	16.8	-22.1	Clear	None
11:05	5	5	100	12.25	0.26	7.01	1.14	6.62	0.08	16.4	-18.7	Clear	None
11:10	5	10	100	12.25	0.40	7.01	1.17	6.99	0.19	16.6	-16.9	Clear	None
11:15	5	15	100	12.25	0.53	7.01	1.18	7.14	0.18	16.4	-15.4	Clear	None
11:20	5	20	100	12.25	0.66	7.01	1.18	7.41	0.18	16.4	-13.2	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6 off site
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-145			**Date**	8/20/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	59.0 degrees F and Clear. The wind is blowing N at 8.1 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	11.32	**Total Depth (ft-bmp)**	15	**Water Column (ft)**	3.68	**Gallons in Well**	0.60
Purge Start	11:35	**Pump Intake (ft-bmp)**	14	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	12:05	**Volumes Purged**	1.32	**Sample ID**	MW-22-145_082024	**Sampled by**	Billy Cobern
Sample Time	12:05	**Gallons Purged**	0.79	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
11:40	0	0	100	11.45	0.13	6.92	0.97	12.1	0.93	18	-12.2	Clear	None
11:45	5	5	100	11.41	0.26	6.92	0.97	8.07	0.82	17.8	-13.4	Clear	None
11:50	5	10	100	11.41	0.40	6.92	0.97	8.28	0.78	18	-14.3	Clear	None
11:55	5	15	100	11.41	0.53	6.92	0.96	7.72	0.74	18.1	-15.8	Clear	None
12:00	5	20	100	11.41	0.66	6.91	0.96	7.24	0.72	18	-16.2	Clear	None
12:05	5	25	100	11.41	0.79	6.91	0.96	7.18	0.71	18.1	-16.5	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot

1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6 off site

Condition of Well: Good condition

Well Completion: Flush mount

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-146			**Date**	8/20/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	64.9 degrees F and Mostly Clear. The wind is blowing N at 9.2 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	3.20	**Total Depth (ft-bmp)**	10.5	**Water Column (ft)**	7.30	**Gallons in Well**	1.19
Purge Start	13:25	**Pump Intake (ft-bmp)**	8	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	14:00	**Volumes Purged**	0.77	**Sample ID**	MW-22-146_082024	**Sampled by**	Billy Cobern
Sample Time	14:00	**Gallons Purged**	0.92	**Replicate/ Code No.**	DUP-03_082024	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
13:30	0	0	100	3.53	0.13	7.09	1.02	14.2	3.33	17.5	-13	Clear	None
13:35	5	5	100	3.53	0.26	7.09	1.01	12.7	3.07	17.4	-11.7	Clear	None
13:40	5	10	100	3.53	0.40	7.09	1.01	10.4	3.18	17.4	-9.6	Clear	None
13:45	5	15	100	3.53	0.53	7.08	1.01	9.12	3.2	17.4	-8	Clear	None
13:50	5	20	100	3.53	0.66	7.08	1.01	8.23	3.14	17.4	-7.8	Clear	None
13:55	5	25	100	3.53	0.79	7.09	1.01	8.01	3.14	17.4	-6.5	Clear	None
14:00	5	30	100	3.53	0.92	7.08	1.01	7.89	3.12	17.4	-5.1	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	4	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6 off site

Condition of Well: Good condition

Well Completion: Flush mount

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-147			**Date**	8/21/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	8.95	**Total Depth (ft-bmp)**	12.19	**Water Column (ft)**	3.24	**Gallons in Well**	0.53
Purge Start	11:10	**Pump Intake (ft-bmp)**	9.69	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	12:15	**Volumes Purged**	5.49	**Sample ID**	MW-22-147_082124	**Sampled by**	Donald Richmond
Sample Time	12:10	**Gallons Purged**	2.91	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
11:30	0	0	200	8.95	1.06	7.08	1.15	104	4.39	17.4	114.2	Clear	None
11:35	5	5	200	8.95	1.32	7.08	1.16	27.1	5.22	17.4	106.9	Clear	None
11:40	5	10	200	8.95	1.59	7.09	1.17	14.9	5.07	17.5	106	Clear	None
11:45	5	15	200	8.95	1.85	7.09	1.18	40	5.04	17.4	104.6	Clear	None
11:50	5	20	200	8.95	2.11	7.1	1.18	29.6	3.93	17.4	101.3	Clear	None
11:55	5	25	200	8.95	2.38	7.11	1.18	12	4.38	17.4	99.2	Clear	None
12:00	5	30	200	8.95	2.64	7.1	1.18	33.4	4.35	17.3	99.9	Clear	None
12:05	5	35	200	8.95	2.91	7.1	1.17	7.76	3.59	17.3	101	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-148			**Date**	8/21/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	24.85	**Total Depth (ft-bmp)**	29.3	**Water Column (ft)**	4.45	**Gallons in Well**	0.72
Purge Start	09:45	**Pump Intake (ft-bmp)**	26.8	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	10:35	**Volumes Purged**	2.93	**Sample ID**	MW-22-148_082124	**Sampled by**	Donald Richmond
Sample Time	10:30	**Gallons Purged**	2.11	**Replicate/ Code No.**	MW-22-148_082124	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
10:00	0	0	200	24.85	0.79	7.13	0.75	162	2.16	14.8	62.3	Clear	None
10:05	5	5	200	24.85	1.06	7.12	0.75	40.5	1.29	14.8	57.1	Clear	None
10:10	5	10	200	24.85	1.32	7.12	0.76	23.8	1.39	15.2	54.7	Clear	None
10:15	5	15	200	24.85	1.59	7.11	0.76	17.2	1.51	15.3	52.5	Clear	None
10:20	5	20	200	24.85	1.85	7.11	0.76	14.5	1.41	15.2	49.4	Clear	None
10:25	5	25	200	24.85	2.11	7.12	0.75	15.7	1.62	15	45.8	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	6	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-149			**Date**	8/21/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	5.24	**Total Depth (ft-bmp)**	9.91	**Water Column (ft)**	4.67	**Gallons in Well**	0.76
Purge Start	13:10	**Pump Intake (ft-bmp)**	7.41	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	13:45	**Volumes Purged**	1.74	**Sample ID**	MW-22-149_082124	**Sampled by**	Donald Richmond
Sample Time	13:40	**Gallons Purged**	1.32	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
13:15	0	0	200	5.24	0.26	7.21	0.51	14.1	5.41	18.4	116.7	Clear	None
13:20	5	5	200	5.24	0.53	7.21	0.51	6.28	4.89	18.5	123.9	Clear	None
13:25	5	10	200	5.24	0.79	7.21	0.51	6.19	6.26	18.4	128.3	Clear	None
13:30	5	15	200	5.24	1.06	7.22	0.51	5.09	6.43	18.5	131.2	Clear	None
13:35	5	20	200	5.24	1.32	7.22	0.51	3.01	6.74	18.6	134.4	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-150			**Date**	8/21/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	55.9 degrees F and Clear. The wind is blowing N/NW at 3.4 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	5.41	**Total Depth (ft-bmp)**	17.94	**Water Column (ft)**	12.53	**Gallons in Well**	2.04
Purge Start	10:00	**Pump Intake (ft-bmp)**	15.44	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	10:40	**Volumes Purged**	1.03	**Sample ID**	MW-22-150_082124	**Sampled by**	Austin Westhuis
Sample Time	10:35	**Gallons Purged**	2.11	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
10:05	0	0	200	6.36	0.26	7.21	4.18	43.7	0.49	16.9	-6.2	Clear	None
10:10	5	5	200	6.93	0.53	7.22	4.13	21.2	0.36	16.9	-45.5	Clear	None
10:15	5	10	200	7.18	0.79	7.22	4.12	9.57	0.37	17	-60.6	Clear	None
10:20	5	15	200	7.23	1.06	7.23	4.12	6.68	0.35	16.8	-68.1	Clear	None
10:25	5	20	200	7.25	1.32	7.23	4.11	5.19	0.33	16.9	-73.7	Clear	None
10:30	5	25	200	7.26	1.59	7.23	4.12	4.87	0.31	16.8	-75.9	Clear	None
10:35	5	30	200	7.26	1.85	7.23	4.11	4.37	0.3	16.8	-76.9	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: See figure.
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 2035

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-151			**Date**	8/21/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	61.0 degrees F and Clear. The wind is blowing N/NW at 4.7 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	5.86	**Total Depth (ft-bmp)**	14.92	**Water Column (ft)**	9.06	**Gallons in Well**	1.47
Purge Start	11:10	**Pump Intake (ft-bmp)**	12.42	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	11:55	**Volumes Purged**	1.62	**Sample ID**	MW-22-151_082124	**Sampled by**	Austin Westhuis
Sample Time	11:50	**Gallons Purged**	2.38	**Replicate/ Code No.**	DUP-04_082124	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
11:15	0	0	200	6.55	0.26	6.76	2.86	158	8.57	17.7	-55.5	Clear	None
11:20	5	5	200	6.70	0.53	6.77	2.85	64.2	7.77	17.7	-64	Clear	None
11:25	5	10	200	6.75	0.79	6.77	2.83	44.2	7.27	17.7	-65.4	Clear	None
11:30	5	15	200	6.77	1.06	6.77	2.85	19.2	7.13	17.7	-66.9	Clear	None
11:35	5	20	200	6.79	1.32	6.77	2.83	11.1	6.97	17.8	-66.9	Clear	None
11:40	5	25	200	6.79	1.59	6.77	2.84	5.71	6.63	17.8	-67.5	Clear	None
11:45	5	30	200	6.79	1.85	6.77	2.84	4.95	6.52	17.8	-67.6	Clear	None
11:50	5	35	200	6.79	2.11	6.77	2.85	4.85	6.41	17.8	-67.9	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	4	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: See figure.
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 2035

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-152			**Date**	8/21/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	64.0 degrees F and Clear. The wind is blowing at 4.7 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	7.64	**Total Depth (ft-bmp)**	14.9	**Water Column (ft)**	7.26	**Gallons in Well**	1.18
Purge Start	12:15	**Pump Intake (ft-bmp)**	12.4	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	12:45	**Volumes Purged**	1.35	**Sample ID**	MW-22-152_082124	**Sampled by**	Austin Westhuis
Sample Time	12:40	**Gallons Purged**	1.59	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
12:20	0	0	200	7.64	0.26	6.94	1.05	12.6	0.31	16.1	29.4	Clear	None
12:25	5	5	200	7.64	0.53	6.93	1.04	3.88	0.12	15.9	15.6	Clear	None
12:30	5	10	200	7.64	0.79	6.93	1.04	2.15	0.11	15.9	11.9	Clear	None
12:35	5	15	200	7.64	1.06	6.92	1.03	1.73	0.1	15.9	10.3	Clear	None
12:40	5	20	200	7.64	1.32	6.92	1.03	1.54	0.1	15.8	9.2	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 2035

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-153			**Date**	8/19/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	63.0 degrees F and Clear. The wind is blowing N at 11.4 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	9.82	**Total Depth (ft-bmp)**	31.15	**Water Column (ft)**	21.33	**Gallons in Well**	3.47
Purge Start	11:50	**Pump Intake (ft-bmp)**	28.5	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	12:30	**Volumes Purged**	0.31	**Sample ID**	MW-22-153_081924	**Sampled by**	Billy Cobern
Sample Time	12:30	**Gallons Purged**	1.06	**Replicate/ Code No.**	MW-22-153_081924	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
11:55	0	0	100	9.84	0.13	7.02	1.78	28.8	0.25	16.6	-74.6	Clear	None
12:00	5	5	100	9.84	0.26	7.02	1.83	23.9	0.18	16.7	-81.4	Clear	None
12:05	5	10	100	9.84	0.40	7	1.93	22.1	0.15	16.7	-86.9	Clear	None
12:10	5	15	100	9.84	0.53	7	1.97	18.9	0.12	16.7	-93.8	Clear	None
12:15	5	20	100	9.84	0.66	7.01	1.99	15.8	0.12	16.6	-98.5	Clear	None
12:20	5	25	100	9.84	0.79	7.01	2	13.2	0.1	16.7	-101.4	Clear	None
12:25	5	30	100	9.84	0.92	7.01	2	13.1	0.1	16.7	-102.2	Clear	None
12:30	5	35	100	9.84	1.06	7.01	2	13	0.1	16.8	-102.4	Clear	None

Constituent Sampled	Container	Number	Preservative
VOCs	40 mL Glass	9	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-154			**Date**	8/19/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	69.1 degrees F and Partly Cloudy. The wind is blowing N at 13.9 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	4.80	**Total Depth (ft-bmp)**	10.58	**Water Column (ft)**	5.78	**Gallons in Well**	0.94
Purge Start	14:00	**Pump Intake (ft-bmp)**	8.08	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	14:40	**Volumes Purged**	2.24	**Sample ID**	MW-22-154_081924	**Sampled by**	Austin Westhuis
Sample Time	14:35	**Gallons Purged**	2.11	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
14:05	0	0	200	5.10	0.26	6.76	9.96	44.1	8.2	16.4	17.8	Clear	None
14:10	5	5	200	5.13	0.53	6.77	9.88	22	7.87	16.5	10.7	Clear	None
14:15	5	10	200	5.13	0.79	6.77	9.79	9.87	7.45	16.4	1.8	Clear	None
14:20	5	15	200	5.13	1.06	6.76	9.78	6.54	7.02	16.4	-2.5	Clear	None
14:25	5	20	200	5.13	1.32	6.76	9.87	4.49	6.69	16.5	-5.3	Clear	None
14:30	5	25	200	5.13	1.59	6.76	9.93	4.19	6.44	16.4	-6.6	Clear	None
14:35	5	30	200	5.13	1.85	6.76	9.95	3.79	6.41	16.4	-7.3	Clear	None

Constituent Sampled	Container	Number	Preservative
VOCs	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 2035

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-155			**Date**	8/19/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	68.0 degrees F and Clear. The wind is blowing N at 10.3 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	11.06	**Total Depth (ft-bmp)**	31.5	**Water Column (ft)**	20.44	**Gallons in Well**	3.32
Purge Start	12:50	**Pump Intake (ft-bmp)**	29	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	13:20	**Volumes Purged**	0.24	**Sample ID**	MW-22-155_081924	**Sampled by**	Billy Cobern
Sample Time	13:20	**Gallons Purged**	0.79	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
12:55	0	0	100	11.08	0.13	6.86	2.51	10.2	0.25	17.4	-75.1	Clear	None
13:00	5	5	100	11.08	0.26	6.86	2.5	9.76	0.2	17.6	-78.7	Clear	None
13:05	5	10	100	11.08	0.40	6.85	2.52	8.97	0.2	17.6	-80.1	Clear	None
13:10	5	15	100	11.08	0.53	6.84	2.55	7.73	0.2	17.7	-84.3	Clear	None
13:15	5	20	100	11.08	0.66	6.84	2.56	7.41	0.2	17.7	-88.8	Clear	None
13:20	5	25	100	11.08	0.79	6.82	2.56	7.15	0.2	17.6	-91.1	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot

1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2

Condition of Well: Good condition

Well Completion: Stick-up

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-156			**Date**	8/19/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	63.0 degrees F and . The wind is blowing N at 11.4 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	12.33	**Total Depth (ft-bmp)**	31.05	**Water Column (ft)**	18.72	**Gallons in Well**	3.04
Purge Start	10:35	**Pump Intake (ft-bmp)**	28.5	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	11:30	**Volumes Purged**	0.48	**Sample ID**	MW-22-156_081924	**Sampled by**	Billy Cobern
Sample Time	11:30	**Gallons Purged**	1.45	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
10:40	0	0	100	12.38	0.13	6.89	1.73	22.7	0.51	17.5	19.1	Clear	None
10:45	5	5	100	12.38	0.26	6.91	1.74	26.3	0.47	17.4	5.7	Clear	None
10:50	5	10	100	12.38	0.40	6.93	1.73	19.8	0.44	17.3	-7.6	Clear	None
10:55	5	15	100	12.38	0.53	6.95	1.71	16.6	0.38	17	-27	Clear	None
11:00	5	20	100	12.38	0.66	6.96	1.7	14.2	0.36	16.9	-38.6	Clear	None
11:05	5	25	100	12.38	0.79	6.98	1.69	11.9	0.33	17	-49.7	Clear	None
11:10	5	30	100	12.38	0.92	7	1.66	10	0.3	16.8	-60.3	Clear	None
11:15	5	35	100	12.38	1.06	7.01	1.64	9.71	0.24	16.8	-67.8	Clear	None
11:20	5	40	100	12.38	1.19	7.03	1.63	9.64	0.22	16.7	-77.4	Clear	None
11:25	5	45	100	12.38	1.32	7.03	1.63	9.39	0.22	16.7	-78.4	Clear	None
11:30	5	50	100	12.38	1.45	7.03	1.63	9.31	0.21	16.6	-79.4	Clear	None

Constituent Sampled	Container	Number	Preservative
VOCs	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-157			**Date**	8/19/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	69.1 degrees F and Mostly Cloudy. The wind is blowing N at 13.9 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	1.82	**Total Depth (ft-bmp)**	27.6	**Water Column (ft)**	25.78	**Gallons in Well**	4.19
Purge Start	16:45	**Pump Intake (ft-bmp)**	25	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	17:25	**Volumes Purged**	0.25	**Sample ID**	MW-22-157_081924	**Sampled by**	Billy Cobern
Sample Time	17:25	**Gallons Purged**	1.06	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
16:50	0	0	100	1.84	0.13	7.02	1.29	18.8	0.22	20.3	-41.7	Clear	None
16:55	5	5	100	1.84	0.26	7.02	1.29	17.6	0.14	20	-48.5	Clear	None
17:00	5	10	100	1.84	0.40	7.02	1.29	15.3	0.13	20	-49.2	Clear	None
17:05	5	15	100	1.84	0.53	7.02	1.29	13.1	0.12	20	-49.7	Clear	None
17:10	5	20	100	1.84	0.66	7.02	1.29	10.4	0.14	19.9	-50.1	Clear	None
17:15	5	25	100	1.84	0.79	7.02	1.29	9.08	0.13	19.8	-50.5	Clear	None
17:20	5	30	100	1.84	0.92	7.02	1.29	8.78	0.13	19.8	-50.8	Clear	None
17:25	5	35	100	1.84	1.06	7.02	1.29	8.73	0.13	19.7	-51.1	Clear	None

Constituent Sampled	Container	Number	Preservative
VOCs	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2 (off site)
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-158			**Date**	8/20/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	55.9 degrees F and Mostly Clear. The wind is blowing N at 8.1 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	13.12	**Total Depth (ft-bmp)**	21	**Water Column (ft)**	7.88	**Gallons in Well**	1.28
Purge Start	10:00	**Pump Intake (ft-bmp)**	18.5	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	10:30	**Volumes Purged**	0.62	**Sample ID**	MW-22-158_082024	**Sampled by**	Billy Cobern
Sample Time	10:30	**Gallons Purged**	0.79	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
10:05	0	0	100	13.39	0.13	7.04	3.33	16	0.26	16	-23.2	Clear	None
10:10	5	5	100	13.39	0.26	7.04	3.35	9.74	0.2	16	-27.8	Clear	None
10:15	5	10	100	13.39	0.40	7.04	3.35	6.89	0.19	16	-30.7	Clear	None
10:20	5	15	100	13.39	0.53	7.04	3.36	5.78	0.18	16	-32.6	Clear	None
10:25	5	20	100	13.39	0.66	7.04	3.37	5.76	0.19	16	-34.4	Clear	None
10:30	5	25	100	13.39	0.79	7.04	3.37	5.62	0.19	16	-36.2	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6 off site
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-160			**Date**	8/20/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	63.0 degrees F and Mostly Cloudy. The wind is blowing N/NE at 11.4 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	13.53	**Total Depth (ft-bmp)**	19	**Water Column (ft)**	5.47	**Gallons in Well**	0.89
Purge Start	12:30	**Pump Intake (ft-bmp)**	16.5	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	13:10	**Volumes Purged**	1.19	**Sample ID**	MW-22-160_082024	**Sampled by**	Billy Cobern
Sample Time	13:10	**Gallons Purged**	1.06	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
12:35	0	0	100	13.63	0.13	6.83	1.24	10.8	0.49	16.8	-19.7	Clear	None
12:40	5	5	100	13.63	0.26	6.83	1.24	16.7	0.51	16.9	-22.9	Clear	None
12:45	5	10	100	13.63	0.40	6.87	1.24	16.3	0.9	17.7	-35.9	Clear	None
12:50	5	15	100	13.63	0.53	6.88	1.25	14	0.71	18.1	-42.2	Clear	None
12:55	5	20	100	13.63	0.66	6.87	1.22	11.4	0.61	18.3	-44.4	Clear	None
13:00	5	25	100	13.63	0.79	6.89	0.71	9.92	0.63	18.8	-45.1	Clear	None
13:05	5	30	100	13.63	0.92	6.89	0.69	9.51	0.64	18.9	-46.7	Clear	None
13:10	5	35	100	13.63	1.06	6.9	0.68	9.05	0.65	18.9	-47.7	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6 off site

Condition of Well: Good condition

Well Completion: Flush mount

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-23-161			**Date**	8/19/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	69.1 degrees F and Partly Cloudy. The wind is blowing N at 13.9 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	9.93	**Total Depth (ft-bmp)**	27.55	**Water Column (ft)**	17.62	**Gallons in Well**	2.86
Purge Start	13:45	**Pump Intake (ft-bmp)**	25	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	14:15	**Volumes Purged**	0.28	**Sample ID**	MW-23-161_081924	**Sampled by**	Billy Cobern
Sample Time	14:15	**Gallons Purged**	0.79	**Replicate/ Code No.**	MW-23-161_081924	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
13:50	0	0	100	9.95	0.13	7.03	1.71	18.1	1.24	15.9	-53.7	Clear	None
13:55	5	5	100	9.95	0.26	7.07	1.53	12.1	0.19	16.5	-82	Clear	None
14:00	5	10	100	9.95	0.40	7.09	1.48	8.78	0.13	16.5	-96.2	Clear	None
14:05	5	15	100	9.95	0.53	7.11	1.48	7.76	0.12	16.5	-99.8	Clear	None
14:10	5	20	100	9.95	0.66	7.12	1.45	7.21	0.12	16.5	-101.1	Clear	None
14:15	5	25	100	9.95	0.79	7.13	1.45	6.99	0.12	16.5	-103.4	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	9	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-23-162			**Date**	8/19/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	69.1 degrees F and Partly Cloudy. The wind is blowing N at 13.9 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	13.50	**Total Depth (ft-bmp)**	36.65	**Water Column (ft)**	23.15	**Gallons in Well**	3.76
Purge Start	14:40	**Pump Intake (ft-bmp)**	34	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	15:20	**Volumes Purged**	0.28	**Sample ID**	MW-23-162_081924	**Sampled by**	Billy Cobern
Sample Time	15:20	**Gallons Purged**	1.06	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
14:45	0	0	100	13.80	0.13	6.74	3.2	14.4	3.08	16.7	-17.7	Clear	None
14:50	5	5	100	13.80	0.26	6.77	3.19	9.98	0.85	16.8	-33	Clear	None
14:55	5	10	100	13.80	0.40	6.79	3.18	7.76	0.61	16.8	-48.2	Clear	None
15:00	5	15	100	13.80	0.53	6.8	3.16	6.64	0.43	16.8	-55.2	Clear	None
15:05	5	20	100	13.80	0.66	6.81	3.15	6.15	0.32	16.8	-61.2	Clear	None
15:10	5	25	100	13.80	0.79	6.82	3.15	6.08	0.25	16.8	-65.4	Clear	None
15:15	5	30	100	13.80	0.92	6.83	3.15	5.92	0.24	16.9	-69.8	Clear	None
15:20	5	35	100	13.80	1.06	6.83	3.14	5.78	0.24	16.9	-72.2	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2

Condition of Well: Good condition

Well Completion: Stick-up

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-23-163			**Date**	8/19/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	70.0 degrees F and Partly Cloudy. The wind is blowing N at 11.4 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	12.85	**Total Depth (ft-bmp)**	27.25	**Water Column (ft)**	14.40	**Gallons in Well**	2.34
Purge Start	15:40	**Pump Intake (ft-bmp)**	24.5	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	16:10	**Volumes Purged**	0.34	**Sample ID**	MW-23-163_081924	**Sampled by**	Billy Cobern
Sample Time	16:10	**Gallons Purged**	0.79	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
15:45	0	0	100	12.96	0.13	7.21	1.4	12.8	2.47	16.5	-64.1	Clear	None
15:50	5	5	100	12.96	0.26	7.13	1.32	8.83	3.25	17	-77.1	Clear	None
15:55	5	10	100	12.96	0.40	7.11	1.29	7.75	3.18	17.1	-87.2	Clear	None
16:00	5	15	100	12.96	0.53	7.09	1.25	6.67	3.09	17.1	-91.3	Clear	None
16:05	5	20	100	12.96	0.66	7.09	1.26	6.36	3.01	17.1	-96.7	Clear	None
16:10	5	25	100	12.96	0.79	7.08	1.27	6.09	2.98	17	-98.6	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	PW-14-02			**Date**	8/19/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	6	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	64.20	**Total Depth (ft-bmp)**	85.24	**Water Column (ft)**	21.04	**Gallons in Well**	30.77
Purge Start	11:00	**Pump Intake (ft-bmp)**	82.74	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	11:45	**Volumes Purged**	0.06	**Sample ID**	PW-14-02_081924	**Sampled by**	Donald Richmond
Sample Time	11:40	**Gallons Purged**	1.85	**Replicate/ Code No.**	DUP-01_081924	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
11:15	0	0	200	64.20	0.79	7.74	1.84	1.77	10.74	18.3	82.1	Clear	None
11:20	5	5	200	64.20	1.06	7.74	1.86	2.07	9.45	18.4	87.7	Clear	None
11:25	5	10	200	64.20	1.32	7.74	1.85	1.53	8.9	18.5	93.9	Clear	None
11:30	5	15	200	64.20	1.59	7.74	1.85	1.73	8.64	18.5	97.1	Clear	None
11:35	5	20	200	64.20	1.85	7.74	1.85	1.16	8.83	18.6	98.6	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	6	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	TW-14-02			**Date**	8/20/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	6	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	64.24	**Total Depth (ft-bmp)**	71.52	**Water Column (ft)**	7.28	**Gallons in Well**	10.65
Purge Start	08:20	**Pump Intake (ft-bmp)**	69.02	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	09:10	**Volumes Purged**	0.20	**Sample ID**	TW-14-02_082024	**Sampled by**	Donald Richmond
Sample Time	21:05	**Gallons Purged**	2.11	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
08:35	0	0	200	64.24	0.79	7.22	3.79	37.2	8.8	14.6	93.9	Clear	None
08:40	5	5	200	64.24	1.06	7.1	3.83	36.7	8.63	14.9	95.6	Clear	None
08:45	5	10	200	64.24	1.32	7.01	3.88	28.3	8.59	14.6	97.3	Clear	None
08:50	5	15	200	64.24	1.59	6.94	3.92	24.4	8.75	14.8	98.9	Clear	None
08:55	5	20	200	64.24	1.85	6.91	3.96	22.2	8.32	15	100.3	Clear	None
09:00	5	25	200	64.24	2.11	6.88	3.98	25.9	8.24	15.1	101.6	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	TW-15-11			**Date**	8/19/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	6	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	59.20	**Total Depth (ft-bmp)**	87.02	**Water Column (ft)**	27.82	**Gallons in Well**	40.68
Purge Start	13:45	**Pump Intake (ft-bmp)**	84.52	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	14:30	**Volumes Purged**	0.04	**Sample ID**	TW-15-11_081924	**Sampled by**	Donald Richmond
Sample Time	14:25	**Gallons Purged**	1.59	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
14:00	0	0	200	59.20	0.79	6.95	3.27	443	7.84	21.7	62.8	Clear	None
14:05	5	5	200	59.20	1.06	6.95	3.45	398	7.35	23.8	75	Clear	None
14:10	5	10	200	59.20	1.32	6.93	3.05	397	8.03	22.5	80.8	Clear	None
14:15	5	15	200	59.20	1.59	6.95	3.3	386	7.76	21.8	85.7	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Stick-up

Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-04-05(6)			**Date**	11/20/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	9.42	**Total Depth (ft-bmp)**	29.6	**Water Column (ft)**	20.18	**Gallons in Well**	3.28
Purge Start	12:30	**Pump Intake (ft-bmp)**	27.1	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	13:40	**Volumes Purged**	0.89	**Sample ID**	MW-04-05(6)	**Sampled by**	Donald Richmond
Sample Time	13:30	**Gallons Purged**	2.91	**Replicate/ Code No.**	Dup-05_11204	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
12:35	0	0	200	9.42	0.26	7.57	1.753	8	1.19	12.6	27.2	Clear	None
12:40	5	5	200	9.42	0.53	7.56	1.74	5.23	0.63	12.3	-19.6	Clear	None
12:45	5	10	200	9.42	0.79	7.55	1.73	4.77	0.28	12.2	-61.8	Clear	None
12:55	10	20	200	9.42	1.32	7.55	1.719	4.66	0.18	12.1	-73.4	Clear	None
13:00	5	25	200	9.42	1.59	7.54	1.723	5.19	0.1	12.3	-81.3	Clear	None
13:05	5	30	200	9.42	1.85	7.54	1.73	5.27	0.04	12.3	-87.4	Clear	None
13:10	5	35	200	9.42	2.11	7.53	1.729	5.59	0.02	12.2	-89.2	Clear	None
13:15	5	40	200	9.42	2.38	7.53	1.724	5.44	0	12.1	-90.6	Clear	None
13:20	5	45	200	9.42	2.64	7.53	1.724	5.7	0	12.1	-91.3	Clear	None
13:25	5	50	200	9.42	2.91	7.53	1.734	5.56	0	12.3	-91.9	Clear	None

Constituent Sampled	Container	Number	Preservative
VOCs SW-846 8260B	40 mL Glass	6	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6

Condition of Well: Good condition

Well Completion: Flush mount

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-12-12			**Date**	11/14/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	44.1 degrees F and . The wind is blowing E/SE at 10.3 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	8.78	**Total Depth (ft-bmp)**	18	**Water Column (ft)**	9.22	**Gallons in Well**	1.50
Purge Start	09:00	**Pump Intake (ft-bmp)**	16	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	10:05	**Volumes Purged**	1.06	**Sample ID**	MW-12-12_111424	**Sampled by**	Jackie Schulte
Sample Time	10:00	**Gallons Purged**	1.59	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
09:05	0	0	100	8.78	0.13	6.95	1.498	4.22	2.99	15.3	142	Clear	None
09:10	5	5	100	9.38	0.26	7.04	1.464	3.74	0.87	15.6	139.3	Clear	None
09:15	5	10	100	9.96	0.40	7.11	1.461	3.07	0.55	15.5	111.2	Clear	None
09:20	5	15	100	10.34	0.53	7.14	1.447	3.43	0.53	15.6	90	Clear	None
09:25	5	20	100	10.57	0.66	7.16	1.439	3.34	0.6	15.4	77.6	Clear	None
09:30	5	25	100	10.78	0.79	7.17	1.436	3.27	0.73	15.4	66.1	Clear	None
09:35	5	30	100	10.99	0.92	7.17	1.423	3.54	0.86	15.4	56.6	Clear	None
09:40	5	35	100	11.34	1.06	7.16	1.389	3.95	1.52	15.9	56.5	Clear	None
09:45	5	40	100	11.58	1.19	7.18	1.354	4.19	1.75	15.8	61	Clear	None
09:50	5	45	100	11.68	1.32	7.2	1.314	5.03	1.23	15.6	60.8	Clear	None
09:55	5	50	100	11.78	1.45	7.2	1.291	6.53	1.04	15.5	60.6	Clear	None
10:00	5	55	100	11.81	1.59	7.21	1.273	10.16	0.91	15.4	60.1	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments: Well, would not stabilize. Sampled after one hour purge.

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Missing bolts
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-12-13			**Date**	11/18/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	55.0 degrees F and Clear. The wind is blowing E at 3.4 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	11.68	**Total Depth (ft-bmp)**	25.27	**Water Column (ft)**	13.59	**Gallons in Well**	2.21
Purge Start	14:25	**Pump Intake (ft-bmp)**	22.77	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	15:10	**Volumes Purged**	1.08	**Sample ID**	MW-12-13_111824	**Sampled by**	Austin Westhuis
Sample Time	15:05	**Gallons Purged**	2.38	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
14:30	0	0	200	12.62	0.26	7.37	0.686	87.25	0.6	14.1	-62	Clear	None
14:35	5	5	200	12.83	0.53	7.37	0.681	62.16	0.41	14	-69.4	Clear	None
14:40	5	10	200	12.91	0.79	7.37	0.676	42.42	0.3	14	-74.6	Clear	None
14:45	5	15	200	12.91	1.06	7.37	0.669	21.48	0.28	13.9	-77.6	Clear	None
14:50	5	20	200	12.93	1.32	7.37	0.667	9.86	0.26	13.9	-83.7	Clear	None
14:55	5	25	200	12.93	1.59	7.37	0.665	8.83	0.25	13.8	-85.2	Clear	None
15:00	5	30	200	12.93	1.85	7.37	0.664	8.11	0.24	13.8	-85.9	Clear	None
15:05	5	35	200	12.93	2.11	7.37	0.663	7.92	0.24	13.8	-86.7	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-12-21			**Date**	11/18/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	65.81	**Total Depth (ft-bmp)**	75	**Water Column (ft)**	9.19	**Gallons in Well**	1.49
Purge Start	09:50	**Pump Intake (ft-bmp)**	72.5	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	10:40	**Volumes Purged**	1.42	**Sample ID**	MW-12-21_111824	**Sampled by**	Donald Richmond
Sample Time	10:35	**Gallons Purged**	2.11	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
10:05	0	0	200	65.81	0.79	6.75	1.34	25	2.65	13.4	-13.2	Clear	None
10:10	5	5	200	65.81	1.06	6.78	1.332	26	2.99	13.2	-12.1	Clear	None
10:15	5	10	200	65.81	1.32	6.79	1.333	27	3.76	13.3	-11.2	Clear	None
10:20	5	15	200	65.81	1.59	6.79	1.328	22.91	4.12	13.1	-10.8	Clear	None
10:25	5	20	200	65.81	1.85	6.81	1.359	21	4.62	13.9	-14	Clear	None
10:30	5	25	200	65.81	2.11	6.81	1.372	23	5.08	14.3	-15	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-13-22			**Date**	11/18/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	70.16	**Total Depth (ft-bmp)**	94	**Water Column (ft)**	23.84	**Gallons in Well**	3.87
Purge Start	11:10	**Pump Intake (ft-bmp)**	91.5	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	12:15	**Volumes Purged**	0.75	**Sample ID**	MW-13-22_111824	**Sampled by**	Donald Richmond
Sample Time	12:10	**Gallons Purged**	2.91	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
11:20	0	0	200	70.16	0.53	6.83	1.56	10.14	0.95	14.1	43.7	Clear	None
11:25	5	5	200	70.16	0.79	6.82	1.557	10.14	0.57	14	36.8	Clear	None
11:35	10	15	200	70.16	1.32	6.82	1.557	12.44	0.24	14	24.2	Clear	None
11:40	5	20	200	70.16	1.59	6.82	1.561	16	0.22	14.1	22.3	Clear	None
11:45	5	25	200	70.16	1.85	6.81	1.575	24.21	0.17	14.4	18.2	Clear	None
11:50	5	30	200	70.16	2.11	6.81	1.574	33	0.13	14.4	14	Clear	None
11:55	5	35	200	70.16	2.38	6.8	1.557	38	0.07	14	7.6	Clear	None
12:00	5	40	200	70.16	2.64	6.8	1.564	47	0.05	14.1	3.5	Clear	None
12:05	5	45	200	70.16	2.91	6.79	1.567	53	0.04	14.1	0.4	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-13-29			**Date**	11/18/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	64.32	**Total Depth (ft-bmp)**	73	**Water Column (ft)**	8.68	**Gallons in Well**	1.41
Purge Start	12:40	**Pump Intake (ft-bmp)**	71.5	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	13:15	**Volumes Purged**	0.94	**Sample ID**	MW-13-29_111824	**Sampled by**	Donald Richmond
Sample Time	13:10	**Gallons Purged**	1.32	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
12:50	0	0	200	64.32	0.53	6.39	2.289	5.08	1.12	14	55.9	Clear	None
12:55	5	5	200	64.32	0.79	6.36	2.366	4.11	0.58	14.1	45.2	Clear	None
13:00	5	10	200	64.32	1.06	6.35	2.386	4.07	0.58	14	46.6	Clear	None
13:05	5	15	200	64.32	1.32	6.35	2.395	3.98	0.57	14	48.6	Clear	None

Constituent Sampled	Container	Number	Preservative
TKN, T. Phosphorus	250 mL Plastic	1	H2SO4
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL
Nitrate/Nitrite	250 mL Plastic	1	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot

1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3

Condition of Well: Good condition

Well Completion: Stick-up

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-13-34			**Date**	11/18/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	66.75	**Total Depth (ft-bmp)**	79	**Water Column (ft)**	12.25	**Gallons in Well**	1.99
Purge Start	14:05	**Pump Intake (ft-bmp)**	76.5	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	15:15	**Volumes Purged**	1.46	**Sample ID**	MW-13-34_111824	**Sampled by**	Donald Richmond
Sample Time	15:05	**Gallons Purged**	2.91	**Replicate/ Code No.**	DUP-04_111824	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
14:20	0	0	200	66.75	0.79	6.97	1.794	22.91	1.43	14.1	70.9	Clear	None
14:25	5	5	200	66.75	1.06	6.94	1.818	66.45	0.77	14.1	8	Clear	None
14:30	5	10	200	66.75	1.32	6.94	1.88	106	0.41	14	-43	Clear	None
14:35	5	15	200	66.75	1.59	6.94	1.892	92	0.33	13.9	-53	Clear	None
14:40	5	20	200	66.75	1.85	6.94	1.906	96	0.24	13.9	-66.6	Clear	None
14:45	5	25	200	66.75	2.11	6.93	1.916	77	0.13	13.8	-74	Clear	None
14:50	5	30	200	66.75	2.38	6.92	1.921	70	0.1	13.8	-77.7	Clear	None
14:55	5	35	200	66.75	2.64	6.92	1.926	68	0.06	13.7	-79.6	Clear	None
15:00	5	40	200	66.75	2.91	6.92	1.932	63	0.04	13.7	-80.9	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	6	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-13-36R			**Date**	11/14/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	44.1 degrees F and Cloudy. The wind is blowing E/SE at 9.2 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	7.54	**Total Depth (ft-bmp)**	10.5	**Water Column (ft)**	2.96	**Gallons in Well**	0.48
Purge Start	10:25	**Pump Intake (ft-bmp)**	9	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	11:30	**Volumes Purged**	3.31	**Sample ID**	MW-13-36R_111424	**Sampled by**	Jackie Schulte
Sample Time	11:25	**Gallons Purged**	1.59	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
10:30	0	0	100	7.57	0.13	11.95	2.285	2.52	1.38	12.5	24.7	Clear	None
10:35	5	5	100	7.57	0.26	11.99	2.346	2.18	0.58	12.6	-1	Clear	None
10:40	5	10	100	7.57	0.40	12.06	2.419	2.08	0.38	12.6	-23.2	Clear	None
10:45	5	15	100	7.57	0.53	12.06	2.455	2.08	0.27	13.1	-35.4	Clear	None
10:50	5	20	100	7.57	0.66	12.08	2.461	1.94	0.23	13.3	-46.6	Clear	None
10:55	5	25	100	7.57	0.79	12.1	2.459	1.95	0.22	13	-56.9	Clear	None
11:00	5	30	100	7.57	0.92	12.11	2.435	1.93	0.2	13	-65.1	Clear	None
11:05	5	35	100	7.57	1.06	12.12	2.42	1.91	0.19	13	-72.1	Clear	None
11:10	5	40	100	7.57	1.19	12.12	2.398	1.88	0.19	13.1	-79.4	Clear	None
11:15	5	45	100	7.57	1.32	12.12	2.384	1.87	0.19	13.1	-85.4	Clear	None
11:20	5	50	100	7.57	1.45	12.12	2.378	1.89	0.18	13.1	-91.7	Clear	None
11:25	5	55	100	7.57	1.59	12.12	2.379	1.84	0.18	13.1	-96.6	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments: Well, did not stabilize. Sampled after one hour purge.

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-13-43			**Date**	11/12/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	42.1 degrees F and Partly Cloudy. The wind is blowing E/NE at 10.3 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	68.23	**Total Depth (ft-bmp)**	77.2	**Water Column (ft)**	8.97	**Gallons in Well**	1.46
Purge Start	13:00	**Pump Intake (ft-bmp)**	75	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	13:55	**Volumes Purged**	0.99	**Sample ID**	MW-13-43_111224	**Sampled by**	Billy Cobern
Sample Time	13:55	**Gallons Purged**	1.45	**Replicate/ Code No.**	MW-13-43_111224	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
13:05	0	0	100	68.76	0.13	6.84	2.703	229.07	8.31	13.9	50.5	Gray	None
13:10	5	5	100	69.25	0.26	6.85	2.701	230.96	8.26	13.8	51.9	Gray	None
13:15	5	10	100	69.79	0.40	6.86	2.703	232.14	8.23	13.8	53.6	Gray	None
13:20	5	15	100	70.29	0.53	6.86	2.7	236.97	8.22	13.8	55.6	Gray	None
13:25	5	20	100	70.29	0.66	6.86	2.698	261.68	8.19	13.9	57.6	Gray	None
13:30	5	25	100	70.81	0.79	6.87	2.7	275.47	8.17	13.9	60.4	Gray	None
13:35	5	30	100	71.27	0.92	6.86	2.699	310.09	8.14	14.1	62.8	Gray	None
13:40	5	35	100	71.77	1.06	6.86	2.698	258.75	8.11	14.2	65.4	Gray	None
13:45	5	40	100	72.25	1.19	6.87	2.703	314.63	8.08	14.2	68.3	Gray	None
13:50	5	45	100	72.72	1.32	6.87	2.707	317.86	8.07	14.1	70.7	Gray	None
13:55	5	50	100	73.19	1.45	6.86	2.705	317.71	8.05	14.1	73.2	Gray	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	9	HCL

Comments: Didn't meet drawdown requirements

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-13-45			**Date**	11/12/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	46.0 degrees F and Clear. The wind is blowing E/NE at 6.9 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	66.32	**Total Depth (ft-bmp)**	78.3	**Water Column (ft)**	11.98	**Gallons in Well**	1.95
Purge Start	14:30	**Pump Intake (ft-bmp)**	76	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	15:10	**Volumes Purged**	0.54	**Sample ID**	MW-13-45_111224	**Sampled by**	Billy Cobern
Sample Time	15:10	**Gallons Purged**	1.06	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
14:35	0	0	100	66.65	0.13	6.58	1.538	391.98	3.52	13.8	-53.2	Clear	None
14:40	5	5	100	66.65	0.26	6.57	1.558	316.75	1.52	12.6	-52.6	Clear	None
14:45	5	10	100	66.65	0.40	6.55	1.551	204.47	1.11	12.3	-51	Clear	None
14:50	5	15	100	66.65	0.53	6.55	1.548	166.78	1.07	12.5	-50.6	Clear	None
14:55	5	20	100	66.65	0.66	6.55	1.545	126.34	1.03	12.4	-49.8	Clear	None
15:00	5	25	100	66.65	0.79	6.56	1.543	91.24	0.95	12.2	-48.9	Clear	None
15:05	5	30	100	66.65	0.92	6.55	1.541	90.43	0.94	12.2	-48.3	Clear	None
15:10	5	35	100	66.65	1.06	6.54	1.542	89.64	0.91	12.2	-47.9	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-13-48			**Date**	11/18/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	56.19	**Total Depth (ft-bmp)**	70	**Water Column (ft)**	13.81	**Gallons in Well**	2.24
Purge Start	15:25	**Pump Intake (ft-bmp)**	67.5	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	16:15	**Volumes Purged**	0.94	**Sample ID**	MW-13-48_111824	**Sampled by**	Donald Richmond
Sample Time	16:10	**Gallons Purged**	2.11	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
15:40	0	0	200	56.19	0.79	6.6	2.247	7.59	0.54	13.4	-47.8	Clear	None
15:45	5	5	200	56.19	1.06	6.58	2.257	9.99	0.3	13.4	-51.8	Clear	None
15:50	5	10	200	56.19	1.32	6.56	2.287	4.05	0.19	13.5	-54.2	Clear	None
15:55	5	15	200	56.19	1.59	6.55	2.342	8.23	0.14	13.4	-56.1	Clear	None
16:00	5	20	200	56.19	1.85	6.55	2.377	5.8	0.1	13.4	-57.7	Clear	None
16:05	5	25	200	56.19	2.11	6.54	2.43	11.35	0.06	13.4	-59.2	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-14-58R			**Date**	11/12/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	41.0 degrees F and Partly Cloudy. The wind is blowing E/NE at 10.3 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	14.08	**Total Depth (ft-bmp)**	27	**Water Column (ft)**	12.92	**Gallons in Well**	2.10
Purge Start	12:17	**Pump Intake (ft-bmp)**	24	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	13:20	**Volumes Purged**	0.73	**Sample ID**	MW-14-58R_111224	**Sampled by**	Jackie Schulte
Sample Time	13:15	**Gallons Purged**	1.53	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
12:20	0	0	100	14.12	0.08	6.93	2.688	8.67	2.1	14.8	-96.1	Clear	None
12:25	5	5	100	14.12	0.21	6.94	2.727	4.7	0.71	15.1	-93	Clear	None
12:30	5	10	100	14.12	0.34	6.95	2.732	4.28	0.47	15.2	-94.3	Clear	None
12:35	5	15	100	14.12	0.48	6.96	2.733	5.54	0.35	15.3	-95.5	Clear	None
12:40	5	20	100	14.12	0.61	6.96	2.733	6.66	0.29	15.1	-95.1	Clear	None
12:45	5	25	100	14.12	0.74	6.95	2.722	7.88	0.24	15	-94.4	Clear	None
12:50	5	30	100	14.12	0.87	6.95	2.726	7.48	0.28	15.1	-94.3	Clear	None
12:55	5	35	100	14.12	1.00	6.95	2.727	6.91	0.19	15	-94.2	Clear	None
13:00	5	40	100	14.12	1.14	6.93	2.727	7.29	0.17	14.9	-92.5	Clear	None
13:05	5	45	100	14.12	1.27	6.93	2.741	8.07	0.16	14.9	-91.2	Clear	None
13:10	5	50	100	14.12	1.40	6.92	2.768	12.63	0.17	14.9	-90.3	Clear	None
13:15	5	55	100	14.12	1.53	6.93	2.784	11.76	0.2	14.6	-88.7	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments: Well would not stabilize. Sample taken after one hour of purge.

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-14-61			**Date**	11/12/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	46.9 degrees F and Mostly Clear. The wind is blowing E at 5.8 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	67.85	**Total Depth (ft-bmp)**	77.4	**Water Column (ft)**	9.55	**Gallons in Well**	1.55
Purge Start	15:35	**Pump Intake (ft-bmp)**	75	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	16:20	**Volumes Purged**	0.77	**Sample ID**	MW-14-61_111224	**Sampled by**	Billy Cobern
Sample Time	16:20	**Gallons Purged**	1.19	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
15:40	0	0	100	68.15	0.13	7.36	3.058	184.57	10.2	12.1	49.2	Clear	None
15:45	5	5	100	68.15	0.26	6.86	3.216	272.57	5.37	13	70.2	Clear	None
15:50	5	10	100	68.15	0.40	6.86	3.263	242.26	3.7	12.5	85.3	Clear	None
15:55	5	15	100	68.15	0.53	6.87	3.255	193.93	3.54	12.2	94.7	Clear	None
16:00	5	20	100	68.15	0.66	6.87	3.254	152.49	3.57	12.4	98.6	Clear	None
16:05	5	25	100	68.15	0.79	6.88	3.252	127.23	3.68	12.3	101.5	Clear	None
16:10	5	30	100	68.15	0.92	6.91	3.238	91.64	4.23	12.4	105.1	Clear	None
16:15	5	35	100	68.15	1.06	6.91	3.233	90.1	4.28	12.4	105.4	Clear	None
16:20	5	40	100	68.15	1.19	6.91	3.237	89.52	4.33	12.5	105.7	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot

1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2

Condition of Well: Good condition

Well Completion: Stick-up

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-15-72			**Date**	11/13/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	30.0 degrees F and Clear. The wind is blowing E at 5.8 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	57.05	**Total Depth (ft-bmp)**	70.3	**Water Column (ft)**	13.25	**Gallons in Well**	2.15
Purge Start	09:00	**Pump Intake (ft-bmp)**	68	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	09:45	**Volumes Purged**	0.55	**Sample ID**	MW-15-72_111324	**Sampled by**	Billy Cobern
Sample Time	09:45	**Gallons Purged**	1.19	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
09:05	0	0	100	57.36	0.13	6.81	1.439	66.14	6.45	13.2	-70.9	Clear	None
09:10	5	5	100	57.36	0.26	6.72	1.411	62.79	2.66	13.5	-69.1	Clear	None
09:15	5	10	100	57.36	0.40	6.71	1.388	60.77	1.53	12.8	-68.6	Clear	None
09:20	5	15	100	57.36	0.53	6.7	1.397	39.55	0.97	13.1	-69.4	Clear	None
09:25	5	20	100	57.36	0.66	6.7	1.423	29.51	0.69	13.1	-71.2	Clear	None
09:30	5	25	100	57.36	0.79	6.7	1.452	19.24	0.61	12.9	-73	Clear	None
09:35	5	30	100	57.36	0.92	6.7	1.464	15.63	0.53	13	-74.1	Clear	None
09:40	5	35	100	57.36	1.06	6.7	1.465	16.07	0.51	13.1	-74.2	Clear	None
09:45	5	40	100	57.36	1.19	6.7	1.466	14.98	0.52	13.1	-74.3	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-16-74			**Date**	11/13/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	45.0 degrees F and Clear. The wind is blowing E/SE at 15.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	66.58	**Total Depth (ft-bmp)**	73.7	**Water Column (ft)**	7.12	**Gallons in Well**	1.16
Purge Start	12:30	**Pump Intake (ft-bmp)**	71	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	13:30	**Volumes Purged**	1.37	**Sample ID**	MW-16-74_111324	**Sampled by**	Billy Cobern
Sample Time	13:30	**Gallons Purged**	1.59	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
12:35	0	0	100	67.02	0.13	6.75	2.124	623.86	6.34	14.7	-1.9	Clear	None
12:40	5	5	100	67.31	0.26	6.59	2.354	1611.47	1	14.6	-14.6	Clear	None
12:45	5	10	100	67.62	0.40	6.6	2.384	2544.44	0.64	14.5	-14.9	Clear	None
12:50	5	15	100	67.91	0.53	6.62	2.383	2098.58	0.8	14.2	-13.7	Clear	None
12:55	5	20	100	68.22	0.66	6.63	2.369	1441.13	1.05	14.2	-11.7	Clear	None
13:00	5	25	100	68.49	0.79	6.65	2.35	1172.97	1.32	14	-9.8	Clear	None
13:05	5	30	100	68.71	0.92	6.67	2.337	798.47	1.65	14	-7.3	Clear	None
13:10	5	35	100	68.95	1.06	6.73	2.337	643.89	4.86	14.3	-10.2	Clear	None
13:15	5	40	100	69.17	1.19	6.67	2.34	900.47	2.07	13.9	-3.4	Clear	None
13:20	5	45	100	69.38	1.32	6.67	2.342	713.68	1.98	14	-3.6	Clear	None
13:25	5	50	100	69.58	1.45	6.67	2.341	700.97	1.97	14	-3.7	Clear	None
13:30	5	55	100	69.79	1.59	6.65	2.341	673.69	1.97	14	-3.9	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments: Didn't meet drawdown requirements

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-16-78			**Date**	11/13/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	37.0 degrees F and Clear. The wind is blowing E/SE at 8.1 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	65.27	**Total Depth (ft-bmp)**	76.2	**Water Column (ft)**	10.93	**Gallons in Well**	1.78
Purge Start	11:15	**Pump Intake (ft-bmp)**	74	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	12:00	**Volumes Purged**	0.67	**Sample ID**	MW-16-78_111324	**Sampled by**	Billy Cobern
Sample Time	12:00	**Gallons Purged**	1.19	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
11:20	0	0	100	65.37	0.13	7.15	1.525	30.15	7.14	13.5	-68.4	Clear	None
11:25	5	5	100	65.36	0.26	6.93	1.582	20.07	0.92	12.8	-65.8	Clear	None
11:30	5	10	100	65.36	0.40	6.92	1.579	19.32	0.65	13	-67.5	Clear	None
11:35	5	15	100	65.36	0.53	6.92	1.579	18.47	0.6	13	-67.7	Clear	None
11:40	5	20	100	65.36	0.66	6.92	1.579	12.79	0.43	13.1	-69.3	Clear	None
11:45	5	25	100	65.36	0.79	6.92	1.587	9.89	0.33	13.2	-71.1	Clear	None
11:50	5	30	100	65.36	0.92	6.92	1.59	6.51	0.24	13	-72.3	Clear	None
11:55	5	35	100	65.36	1.06	6.92	1.591	6.31	0.22	13	-72.7	Clear	None
12:00	5	40	100	65.36	1.19	6.92	1.59	6.56	0.22	13	-72.8	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-16-81			**Date**	11/13/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	50.0 degrees F and Clear. The wind is blowing E/SE at 13.9 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	63.30	**Total Depth (ft-bmp)**	77.2	**Water Column (ft)**	13.90	**Gallons in Well**	2.26
Purge Start	13:55	**Pump Intake (ft-bmp)**	75	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	14:40	**Volumes Purged**	0.53	**Sample ID**	MW-16-81_111324	**Sampled by**	Billy Cobern
Sample Time	14:40	**Gallons Purged**	1.19	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
14:00	0	0	100	63.61	0.13	7.22	2.774	70.54	8.75	14.6	50.1	Clear	None
14:05	5	5	100	63.61	0.26	7.16	2.899	58.76	7.74	14.6	55.3	Clear	None
14:10	5	10	100	63.61	0.40	6.93	2.936	24.48	5.64	14.5	68.2	Clear	None
14:15	5	15	100	63.61	0.53	6.76	2.965	13.69	2.27	14.2	80.8	Clear	None
14:20	5	20	100	63.61	0.66	6.74	2.976	18.31	1.62	14.1	84.5	Clear	None
14:25	5	25	100	63.61	0.79	6.72	3	15.45	1.25	14.2	88.4	Clear	None
14:30	5	30	100	63.61	0.92	6.71	3.01	11.94	1.24	14.1	90.9	Clear	None
14:35	5	35	100	63.61	1.06	6.71	3.011	12.11	1.27	14.1	91.1	Clear	None
14:40	5	40	100	63.61	1.19	6.71	3.014	11.97	1.17	14.1	91.3	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-16-82			**Date**	11/13/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	37.0 degrees F and Clear. The wind is blowing E/SE at 8.1 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	67.19	**Total Depth (ft-bmp)**	77.15	**Water Column (ft)**	9.96	**Gallons in Well**	1.62
Purge Start	10:10	**Pump Intake (ft-bmp)**	75	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	10:50	**Volumes Purged**	0.65	**Sample ID**	MW-16-82_111324	**Sampled by**	Billy Cobern
Sample Time	10:50	**Gallons Purged**	1.06	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
10:15	0	0	100	67.65	0.13	6.88	1.439	13.6	2.97	14.6	-73.8	Clear	None
10:20	5	5	100	67.96	0.26	6.86	1.46	14.56	1.96	13.9	-77.5	Clear	None
10:25	5	10	100	68.25	0.40	6.85	1.446	13.46	1.13	14.2	-81.6	Clear	None
10:30	5	15	100	68.57	0.53	6.86	1.429	11.85	0.85	14.3	-84.6	Clear	None
10:35	5	20	100	68.79	0.66	6.86	1.416	9.83	0.58	14.3	-87.2	Clear	None
10:40	5	25	100	69.02	0.79	6.86	1.419	8.85	0.49	14.3	-88.6	Clear	None
10:45	5	30	100	69.29	0.92	6.85	1.419	9.01	0.49	14.3	-88.8	Clear	None
10:50	5	35	100	69.51	1.06	6.85	1.418	9.32	0.49	14.3	-88.9	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments: Didn't meet drawdown requirements

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-16-84			**Date**	11/13/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	51.1 degrees F and Clear. The wind is blowing E/SE at 13.9 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	69.98	**Total Depth (ft-bmp)**	81.15	**Water Column (ft)**	11.17	**Gallons in Well**	1.82
Purge Start	15:05	**Pump Intake (ft-bmp)**	79	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	15:55	**Volumes Purged**	0.73	**Sample ID**	MW-16-84_111324	**Sampled by**	Billy Cobern
Sample Time	15:55	**Gallons Purged**	1.32	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
15:10	0	0	100	70.47	0.13	7.24	2.633	112.82	9.44	14	85.4	Clear	None
15:15	5	5	100	70.79	0.26	7.11	2.655	101.07	9.29	14	87.5	Clear	None
15:20	5	10	100	71.05	0.40	6.91	2.748	95.59	7.42	13.9	93.5	Clear	None
15:25	5	15	100	71.29	0.53	6.85	2.801	100.05	5.99	12.9	101.9	Clear	None
15:30	5	20	100	71.51	0.66	6.84	2.768	94.47	5.57	12.6	104.6	Clear	None
15:35	5	25	100	71.72	0.79	6.85	2.736	65.47	5.43	12.5	105.5	Clear	None
15:40	5	30	100	71.89	0.92	6.86	2.704	58.22	5.36	12.4	105.6	Clear	None
15:45	5	35	100	72.11	1.06	6.87	2.67	40.65	5.29	12.3	105.2	Clear	None
15:50	5	40	100	72.30	1.19	6.88	2.647	43.2	5.25	12.2	104.5	Clear	None
15:55	5	45	100	72.46	1.32	6.89	2.635	43.44	5.23	12.2	104.3	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments: Didn't meet drawdown requirements

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-16-85			**Date**	11/12/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	71.32	**Total Depth (ft-bmp)**	79	**Water Column (ft)**	7.68	**Gallons in Well**	1.25
Purge Start	14:55	**Pump Intake (ft-bmp)**	76.5	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	16:00	**Volumes Purged**	2.33	**Sample ID**	MW-16-85_111224	**Sampled by**	Donald Richmond
Sample Time	15:55	**Gallons Purged**	2.91	**Replicate/ Code No.**	MW-16-85_111224	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
15:05	0	0	200	71.32	0.53	7.42	0.595	120	2.43	13.1	-50	Clear	None
15:10	5	5	200	71.32	0.79	7.44	0.6	121	2.95	13.2	-58.7	Clear	None
15:15	5	10	200	71.32	1.06	7.44	0.612	131	3.29	13.1	-54.6	Clear	None
15:20	5	15	200	71.32	1.32	7.42	0.625	112	3.31	12.7	-51.6	Clear	None
15:25	5	20	200	71.32	1.59	7.45	0.618	91	3.63	12.8	-47.8	Clear	None
15:30	5	25	200	71.32	1.85	7.43	0.625	77	3.27	12.7	-44.2	Clear	None
15:35	5	30	200	71.32	2.11	7.36	0.699	89	2.03	12.3	-49	Clear	None
15:40	5	35	200	71.32	2.38	7.27	0.78	73	0.99	12.4	-61.5	Clear	None
15:45	5	40	200	71.32	2.64	7.24	0.808	70	0.62	12.4	-68.2	Clear	None
15:50	5	45	200	71.32	2.91	7.23	0.824	84	0.43	12.4	-74	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	9	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-17-86			**Date**	11/14/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	45.0 degrees F and Cloudy. The wind is blowing SE at 13.9 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	66.34	**Total Depth (ft-bmp)**	81.45	**Water Column (ft)**	15.11	**Gallons in Well**	2.46
Purge Start	11:45	**Pump Intake (ft-bmp)**	79	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	12:40	**Volumes Purged**	0.59	**Sample ID**	MW-17-86_111424	**Sampled by**	Billy Cobern
Sample Time	12:40	**Gallons Purged**	1.45	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
11:50	0	0	100	66.65	0.13	7.36	2.807	72.15	9	14.2	-73.6	Clear	None
11:55	5	5	100	66.65	0.26	7.1	2.938	38.01	4.75	13.5	-66.2	Clear	None
12:00	5	10	100	66.65	0.40	7.08	2.947	35.43	3.85	13.4	-65.1	Clear	None
12:05	5	15	100	66.65	0.53	7.05	2.97	36.53	2.18	12.5	-63.3	Clear	None
12:10	5	20	100	66.65	0.66	7.05	2.945	34.72	1.5	11.7	-61.8	Clear	None
12:15	5	25	100	66.65	0.79	7.05	2.945	28.38	1.27	11.9	-62.2	Clear	None
12:20	5	30	100	66.65	0.92	7.04	2.951	20.96	1.15	11.9	-63	Clear	None
12:25	5	35	100	66.65	1.06	7.04	2.954	18.54	0.97	11.8	-64.1	Clear	None
12:30	5	40	100	66.65	1.19	7.03	2.954	16.49	0.96	11.9	-65.2	Clear	None
12:35	5	45	100	66.65	1.32	7.03	2.959	16.21	0.91	12	-66.3	Clear	None
12:40	5	50	100	66.65	1.45	7.03	2.957	15.92	0.89	12	-66.4	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-18-88			**Date**	11/19/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	51.1 degrees F and Mostly Cloudy. The wind is blowing SE at 18.3 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	5.12	**Total Depth (ft-bmp)**	15	**Water Column (ft)**	9.88	**Gallons in Well**	1.61
Purge Start	10:30	**Pump Intake (ft-bmp)**	12.5	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	11:25	**Volumes Purged**	0.90	**Sample ID**	MW-18-88_111924	**Sampled by**	Billy Cobern
Sample Time	11:25	**Gallons Purged**	1.45	**Replicate/ Code No.**	MW-18-88_111924	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
10:35	0	0	100	5.20	0.13	6.62	0.912	14.04	2.87	16.2	189	Clear	None
10:40	5	5	100	5.20	0.26	6.72	0.891	8.79	1.98	16.1	179.8	Clear	None
10:45	5	10	100	5.20	0.40	6.82	0.869	7.77	1.43	16.1	169.7	Clear	None
10:50	5	15	100	5.20	0.53	6.88	0.851	7.61	1.25	16.1	162.7	Clear	None
10:55	5	20	100	5.20	0.66	6.95	0.785	3.14	0.64	16	161	Clear	None
11:00	5	25	100	5.20	0.79	6.95	0.748	2.59	0.3	16.1	168.8	Clear	None
11:05	5	30	100	5.20	0.92	6.93	0.746	6.54	0.21	16.2	155.4	Clear	None
11:10	5	35	100	5.20	1.06	6.93	0.746	3.98	0.16	16.2	154.6	Clear	None
11:15	5	40	100	5.20	1.19	6.93	0.746	2.12	0.13	16.2	154	Clear	None
11:20	5	45	100	5.20	1.32	6.93	0.746	2.22	0.12	16.2	148.8	Clear	None
11:25	5	50	100	5.20	1.45	6.93	0.746	2.24	0.12	16.2	147.9	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-18-95			**Date**	11/19/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	53.1 degrees F and Fog/Mist. The wind is blowing SE at 15.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	6.84	**Total Depth (ft-bmp)**	12.5	**Water Column (ft)**	5.66	**Gallons in Well**	0.92
Purge Start	11:55	**Pump Intake (ft-bmp)**	10	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	12:55	**Volumes Purged**	1.73	**Sample ID**	MW-18-95_111924	**Sampled by**	Billy Cobern
Sample Time	12:55	**Gallons Purged**	1.59	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
12:00	0	0	100	7.15	0.13	7.25	0.6	8.54	2.15	15.5	145	Clear	None
12:05	5	5	100	7.15	0.26	7.24	0.6	7.21	1.99	15.5	140.7	Clear	None
12:10	5	10	100	7.15	0.40	7.24	0.6	6.32	1.83	15.5	136.8	Clear	None
12:15	5	15	100	7.15	0.53	7.26	0.601	10.99	1.31	15.6	121.2	Clear	None
12:20	5	20	100	7.15	0.66	7.26	0.611	14.72	1.24	15.5	116.7	Clear	None
12:25	5	25	100	7.15	0.79	7.25	0.619	18.97	1.17	15.5	114.5	Clear	None
12:30	5	30	100	7.15	0.92	7.25	0.621	21.98	1.12	15.4	118.7	Clear	None
12:35	5	35	100	7.15	1.06	7.25	0.629	14.32	1.09	15.5	113.7	Clear	None
12:40	5	40	100	7.15	1.19	7.24	0.633	11.73	1.04	15.4	105.5	Clear	None
12:45	5	45	100	7.15	1.32	7.23	0.639	9.72	1.03	15.4	107.6	Clear	None
12:50	5	50	100	7.15	1.45	7.23	0.641	9.35	1.01	15.4	101.1	Clear	None
12:55	5	55	100	7.15	1.59	7.23	0.642	9.45	1.01	15.3	104.4	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-18-98			**Date**	11/19/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	57.0 degrees F and Cloudy. The wind is blowing S/SE at 12.8 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	4.37	**Total Depth (ft-bmp)**	14.95	**Water Column (ft)**	10.58	**Gallons in Well**	1.72
Purge Start	13:25	**Pump Intake (ft-bmp)**	13	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	14:05	**Volumes Purged**	0.63	**Sample ID**	MW-18-98_111924	**Sampled by**	Billy Cobern
Sample Time	14:05	**Gallons Purged**	1.09	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
13:30	0	0	100	5.01	0.13	7.29	0.632	17.27	4.47	16.2	147.2	Clear	None
13:35	5	5	100	5.69	0.26	7.24	0.635	4.79	3.34	16	149.8	Clear	None
13:40	5	10	100	6.08	0.40	7.22	0.634	2.62	2.82	15.8	151.8	Clear	None
13:45	5	15	100	6.61	0.53	7.21	0.633	2.94	2.69	15.8	153.9	Clear	None
13:50	5	20	100	6.98	0.00	7.21	0.631	5.55	2.56	15.8	153.2	Clear	None
13:55	5	25	100	7.41	0.79	7.2	0.631	2.31	2.49	15.8	153.6	Clear	None
14:00	5	30	100	7.89	0.92	7.2	0.63	2.49	2.43	15.8	154.3	Clear	None
14:05	5	35	100	8.19	1.06	7.21	0.629	2.74	2.37	15.8	155.1	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments: Didn't meet drawdown requirements

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3

Condition of Well: Good condition

Well Completion: Stick-up

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-18-99			**Date**	11/20/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	46.9 degrees F and Cloudy. The wind is blowing W/SW at 8.1 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	3.47	**Total Depth (ft-bmp)**	16.9	**Water Column (ft)**	13.43	**Gallons in Well**	2.18
Purge Start	11:10	**Pump Intake (ft-bmp)**	14.5	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	12:10	**Volumes Purged**	0.73	**Sample ID**	MW-18-99_112024	**Sampled by**	Billy Cobern
Sample Time	12:10	**Gallons Purged**	1.59	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
11:15	0	0	100	4.04	0.13	7.76	1.28	4.67	0.28	13.6	66	Clear	None
11:20	5	5	100	4.27	0.26	7.75	1.277	3.95	0.27	13.6	54.3	Clear	None
11:25	5	10	100	4.59	0.40	7.75	1.268	4.12	0.16	13.5	-45.6	Clear	None
11:30	5	15	100	4.82	0.53	7.75	1.25	3.99	0.12	13.4	-88.3	Clear	None
11:35	5	20	100	5.03	0.66	7.75	1.241	3.67	0.09	13.4	-101.5	Clear	None
11:40	5	25	100	5.25	0.79	7.75	1.223	4.18	0.07	13.4	-111.9	Clear	None
11:45	5	30	100	5.45	0.92	7.75	1.202	3.87	0.06	13.8	-119.8	Clear	None
11:50	5	35	100	5.64	1.06	7.75	1.198	3.57	0.04	13.9	-122.7	Clear	None
11:55	5	40	100	5.86	1.19	7.76	1.182	3.46	0	14	-126.9	Clear	None
12:00	5	45	100	5.99	1.32	7.76	1.173	3.41	0.01	14.1	-130.4	Clear	None
12:05	5	50	100	6.17	1.45	7.76	1.169	3.45	0.01	14.1	-130.8	Clear	None
12:10	5	55	100	6.33	1.59	7.77	1.165	3.42	0.01	14.1	-131.4	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments: Didn't meet drawdown requirements

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-18-100			**Date**	11/20/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	46.0 degrees F and Cloudy. The wind is blowing W at 4.7 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	10.84	**Total Depth (ft-bmp)**	15.85	**Water Column (ft)**	5.01	**Gallons in Well**	0.81
Purge Start	09:55	**Pump Intake (ft-bmp)**	14	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	10:50	**Volumes Purged**	1.96	**Sample ID**	MW-18-100_112024	**Sampled by**	Billy Cobern
Sample Time	10:50	**Gallons Purged**	1.59	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
10:00	0	0	100	11.14	0.13	7.55	1.145	114.32	5.56	16.2	-78.8	Clear	None
10:05	5	5	100	11.10	0.26	7.61	1.161	24.64	4.9	15.3	-35.5	Clear	None
10:10	5	10	100	11.10	0.40	7.63	1.161	19.74	4.79	15.1	-29	Clear	None
10:15	5	15	100	11.10	0.53	7.63	1.165	13.83	4.8	15	-15.5	Clear	None
10:20	5	20	100	11.10	0.66	7.62	1.164	11.67	4.84	15.2	5.8	Clear	None
10:25	5	25	100	11.10	0.79	7.6	1.165	11.01	4.95	14.9	22.8	Clear	None
10:30	5	30	100	11.10	0.92	7.55	1.179	10.76	5	14.9	38.8	Clear	None
10:35	5	35	100	11.10	1.06	7.5	1.226	9.03	4.78	14.8	56.7	Clear	None
10:40	5	40	100	11.10	1.19	7.47	1.248	7.74	4.7	14.8	65	Clear	None
10:45	5	45	100	11.10	1.32	7.47	1.254	7.64	4.69	14.8	66	Clear	None
10:50	5	50	100	11.10	1.45	7.47	1.259	7.38	4.67	14.9	67	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments: Didn't meet drawdown requirements

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-18-101			**Date**	11/18/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	41.0 degrees F and Fog/Mist. The wind is blowing undefined at 0.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	63.78	**Total Depth (ft-bmp)**	87.45	**Water Column (ft)**	23.67	**Gallons in Well**	3.85
Purge Start	09:45	**Pump Intake (ft-bmp)**	85	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	10:45	**Volumes Purged**	0.41	**Sample ID**	MW-18-101_111824	**Sampled by**	Billy Cobern
Sample Time	10:45	**Gallons Purged**	1.59	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
09:50	0	0	100	64.09	0.13	6.87	3.647	16.11	8.23	12.4	-79.4	Clear	None
09:55	5	5	100	64.07	0.26	6.86	4.364	11.08	7.71	12.3	-74.8	Clear	None
10:00	5	10	100	64.07	0.40	6.86	4.487	12.56	7.33	12.3	-74.7	Clear	None
10:05	5	15	100	64.07	0.53	6.86	4.535	13.55	6.99	12.3	-74.8	Clear	None
10:10	5	20	100	64.07	0.66	6.88	4.741	20.79	4.09	11.6	-78.7	Clear	None
10:15	5	25	100	64.07	0.79	6.9	4.749	29.04	2.47	11.3	-82.6	Clear	None
10:20	5	30	100	64.07	0.92	6.91	4.762	43.42	1.5	11.1	-85.9	Clear	None
10:25	5	35	100	64.07	1.06	6.9	4.803	50.13	1.22	11.3	-85.4	Clear	None
10:30	5	40	100	64.07	1.19	6.89	4.866	66.68	0.98	11.5	-85.3	Clear	None
10:35	5	45	100	64.07	1.32	6.89	4.902	81.22	0.87	11.6	-85.2	Clear	None
10:40	5	50	100	64.07	1.45	6.89	4.909	61.4	0.85	11.7	-85.2	Clear	None
10:45	5	55	100	64.07	1.59	6.89	4.915	44.51	0.84	11.7	-85.3	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments: Turbidity didn't stabilize within 60 minutes

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-18-105			**Date**	11/20/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	46.0 degrees F and Cloudy. The wind is blowing SW at 4.7 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	2.05	**Total Depth (ft-bmp)**	11.2	**Water Column (ft)**	9.15	**Gallons in Well**	1.49
Purge Start	08:30	**Pump Intake (ft-bmp)**	9	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	09:20	**Volumes Purged**	1.07	**Sample ID**	MW-18-105_112024	**Sampled by**	Billy Cobern
Sample Time	09:20	**Gallons Purged**	1.59	**Replicate/ Code No.**	DUP-03_112024	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
08:35	0	0	100	2.75	0.13	7.25	0.587	43.68	3.11	12.6	104.7	Clear	None
08:40	5	5	100	3.25	0.26	7.22	0.584	18.43	2.52	12.3	108.5	Clear	None
08:45	5	10	100	3.70	0.40	7.2	0.584	13.36	2.26	12.3	110.9	Clear	None
08:50	5	15	100	4.05	0.53	7.19	0.585	5.56	2.03	12.2	114.7	Clear	None
08:55	5	20	100	4.34	0.66	7.18	0.586	6.09	1.97	12.2	115.2	Clear	None
09:00	5	25	100	4.59	0.79	7.17	0.587	5.69	1.81	12.2	116.6	Clear	None
09:05	5	30	100	4.82	0.92	7.17	0.589	4.73	1.69	12.3	117.7	Clear	None
09:10	5	35	100	5.04	1.06	7.16	0.592	5.69	1.57	12.1	119.2	Clear	None
09:15	5	40	100	5.25	1.19	7.15	0.593	4.81	1.47	12.2	119.6	Clear	None
09:20	5	45	100	5.46	1.32	7.15	0.593	4.71	1.46	12.2	119.7	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	4	None

Comments: Didn't meet drawdown requirements

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3 off site
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-19-107			**Date**	11/19/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	23.07	**Total Depth (ft-bmp)**	29.86	**Water Column (ft)**	6.79	**Gallons in Well**	1.10
Purge Start	14:15	**Pump Intake (ft-bmp)**	27.3	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	15:10	**Volumes Purged**	1.45	**Sample ID**	MW-19-107_111924	**Sampled by**	Donald Richmond
Sample Time	15:00	**Gallons Purged**	1.59	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
14:30	0	0	200	23.07	0.79	6.75	0.772	10	1.29	15.2	69.2	Clear	None
14:35	5	5	200	23.07	1.06	6.73	0.775	7.64	0.7	15.1	36.1	Clear	None
14:40	5	10	200	23.07	1.32	6.72	0.78	8	0.38	15.1	23.2	Clear	None
14:45	5	15	200	23.07	1.59	6.76	0.785	17.61	2.08	15.2	20.1	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments: Well went dry at 1445. Sampled recharge at 1500

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-19-108			**Date**	11/19/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	21.09	**Total Depth (ft-bmp)**	30.05	**Water Column (ft)**	8.96	**Gallons in Well**	1.46
Purge Start	12:35	**Pump Intake (ft-bmp)**	27.5	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	13:45	**Volumes Purged**	1.99	**Sample ID**	MW-19-108_111924	**Sampled by**	Donald Richmond
Sample Time	13:35	**Gallons Purged**	2.91	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
12:45	0	0	200	21.09	0.53	6.67	1.307	469	2.17	14.8	143.2	Clear	None
12:50	5	5	200	21.09	0.79	6.65	1.298	401	0.58	14.8	132.1	Clear	None
12:55	5	10	200	21.09	1.06	6.66	1.289	153	0.23	14.9	108.9	Clear	None
13:00	5	15	200	21.09	1.32	6.66	1.291	127	0.2	15	101.6	Clear	None
13:10	10	25	200	21.09	1.85	6.67	1.288	82	0.11	14.9	85.1	Clear	None
13:15	5	30	200	21.09	2.11	6.67	1.286	51	0.08	15.1	76.4	Clear	None
13:20	5	35	200	21.09	2.38	6.67	1.29	56	0.07	15.3	71.8	Clear	None
13:25	5	40	200	21.09	2.64	6.68	1.283	69	0.07	15.3	71.8	Clear	None
13:30	5	45	200	21.09	2.91	6.68	1.276	115	0.02	15.1	53.7	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-19-111			**Date**	11/19/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	25.57	**Total Depth (ft-bmp)**	27.42	**Water Column (ft)**	1.85	**Gallons in Well**	0.30
Purge Start	11:05	**Pump Intake (ft-bmp)**	26	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	12:15	**Volumes Purged**	9.70	**Sample ID**	MW-19-111_111924	**Sampled by**	Donald Richmond
Sample Time	12:05	**Gallons Purged**	2.91	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
11:15	0	0	200	25.57	0.53	6.6	1.179	40	1.24	13.8	135.2	Clear	None
11:20	5	5	200	25.57	0.79	6.63	1.171	18.82	0.87	13.8	134.1	Clear	None
11:25	5	10	200	25.57	1.06	6.64	1.165	8.94	0.48	13.9	132.2	Clear	None
11:30	5	15	200	25.57	1.32	6.66	1.151	8.24	0.32	13.9	130.3	Clear	None
11:35	5	20	200	25.57	1.59	6.67	1.116	7.97	0.21	13.9	128.7	Clear	None
11:40	5	25	200	25.57	1.85	6.68	1.093	7.3	0.16	13.9	127.8	Clear	None
11:45	5	30	200	25.57	2.11	6.69	1.064	13.48	0.09	14	126	Clear	None
11:50	5	35	200	25.57	2.38	6.69	1.059	23	0.07	14	124.9	Clear	None
11:55	5	40	200	25.57	2.64	6.69	1.055	31.77	0.05	14	124.2	Clear	None
12:00	5	45	200	25.57	2.91	6.69	1.049	44.9	0.03	14.1	123.2	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-19-115			**Date**	11/14/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	46.0 degrees F and Cloudy. The wind is blowing SE at 9.2 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	58.44	**Total Depth (ft-bmp)**	80.3	**Water Column (ft)**	21.86	**Gallons in Well**	3.55
Purge Start	14:00	**Pump Intake (ft-bmp)**	78	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	15:00	**Volumes Purged**	0.45	**Sample ID**	MW-19-115_111424	**Sampled by**	Billy Cobern
Sample Time	15:00	**Gallons Purged**	1.59	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
14:05	0	0	100	58.77	0.13	7.05	2.734	111.79	7.61	11.3	-9.9	Clear	None
14:10	5	5	100	58.77	0.26	6.77	3.154	233.57	1.72	11.7	-13.3	Clear	None
14:15	5	10	100	58.77	0.40	6.79	3.167	197.89	0.77	11.7	-17.2	Clear	None
14:20	5	15	100	58.77	0.53	6.8	3.171	171.81	0.75	11.8	-18.6	Clear	None
14:25	5	20	100	58.77	0.66	6.8	3.162	119.07	0.89	12.1	-19.1	Clear	None
14:30	5	25	100	58.77	0.79	6.81	3.148	105.32	1.06	12.1	-18.1	Clear	None
14:35	5	30	100	58.77	0.92	6.82	3.137	95.09	1.2	12.2	-17.2	Clear	None
14:40	5	35	100	58.77	1.06	6.83	3.134	63.67	1.28	11.9	-16.2	Clear	None
14:45	5	40	100	58.77	1.19	6.83	3.133	51.46	1.33	11.6	-15.4	Clear	None
14:50	5	45	100	58.77	1.32	6.83	3.132	42.3	1.36	11.5	-15	Clear	None
14:55	5	50	100	58.77	1.45	6.83	3.134	41.45	1.4	11.4	-14.3	Clear	None
15:00	5	55	100	58.77	1.59	6.84	3.134	40.68	1.41	11.4	-14.2	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-19-116			**Date**	11/14/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	45.0 degrees F and Cloudy. The wind is blowing SE at 13.9 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	56.05	**Total Depth (ft-bmp)**	73.2	**Water Column (ft)**	17.15	**Gallons in Well**	2.79
Purge Start	13:05	**Pump Intake (ft-bmp)**	71	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	13:35	**Volumes Purged**	0.28	**Sample ID**	MW-19-116_111424	**Sampled by**	Billy Cobern
Sample Time	13:35	**Gallons Purged**	0.79	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
13:10	0	0	100	56.34	0.13	6.85	0.732	53.49	7.68	13.5	14.7	Clear	None
13:15	5	5	100	56.34	0.26	6.78	1.429	16.43	4.35	13.3	-31.7	Clear	None
13:20	5	10	100	56.34	0.40	6.83	1.421	11.42	2.35	22.9	-57.7	Clear	None
13:25	5	15	100	56.34	0.53	6.85	1.446	5.01	1.55	12.9	-71	Clear	None
13:30	5	20	100	56.34	0.66	6.85	1.448	5.1	1.49	12.9	-71.7	Clear	None
13:35	5	25	100	56.34	0.79	6.85	1.449	4.59	1.46	12.8	-72.8	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-19-117			**Date**	11/15/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	45.0 degrees F and Cloudy. The wind is blowing W/NW at 5.8 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	59.39	**Total Depth (ft-bmp)**	62.8	**Water Column (ft)**	3.41	**Gallons in Well**	0.55
Purge Start	10:15	**Pump Intake (ft-bmp)**	62.5	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	11:15	**Volumes Purged**	2.89	**Sample ID**	MW-19-117_111524	**Sampled by**	Billy Cobern
Sample Time	11:15	**Gallons Purged**	1.59	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
10:20	0	0	100	59.69	0.13	6.8	1.149	514.37	3.04	15.2	-48.8	Clear	None
10:25	5	5	100	59.65	0.26	6.79	1.145	209.79	0.93	14.5	-49.5	Clear	None
10:30	5	10	100	59.65	0.40	6.77	1.145	107.77	0.7	14.4	-49	Clear	None
10:35	5	15	100	59.65	0.53	6.78	1.146	70.8	0.58	14.3	-46.5	Clear	None
10:40	5	20	100	59.65	0.66	6.76	1.148	49.2	0.53	14.3	-41.2	Clear	None
10:45	5	25	100	59.65	0.79	6.76	1.148	44.09	0.51	14.2	-36.9	Clear	None
10:50	5	30	100	59.65	0.92	6.76	1.15	43.87	0.54	13.9	-31.9	Clear	None
10:55	5	35	100	59.65	1.06	6.75	1.149	43.08	0.59	14	-29.3	Clear	None
11:00	5	40	100	59.65	1.19	6.75	1.148	48.55	0.51	14	-27.1	Clear	None
11:05	5	45	100	59.65	1.32	6.75	1.144	64.99	0.43	14	-25.7	Clear	None
11:10	5	50	100	59.65	1.45	6.76	1.146	66.71	0.4	14	-27.1	Clear	None
11:15	5	55	100	59.65	1.59	6.75	1.145	87.78	0.37	13.9	-32.6	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments: DO and Turbidity didn't stabilize within 60 minutes

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-19-120			**Date**	11/15/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	45.0 degrees F and Cloudy. The wind is blowing W/NW at 5.8 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	66.81	**Total Depth (ft-bmp)**	74	**Water Column (ft)**	7.19	**Gallons in Well**	1.17
Purge Start	11:40	**Pump Intake (ft-bmp)**	72	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	12:40	**Volumes Purged**	1.36	**Sample ID**	MW-19-120_111524	**Sampled by**	Billy Cobern
Sample Time	12:40	**Gallons Purged**	1.59	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
11:45	0	0	100	67.14	0.13	7.25	1.58	2648.84	6.65	14.4	52.6	Clear	None
11:50	5	5	100	67.14	0.26	7.15	1.611	2468.36	5.61	14.4	47.9	Clear	None
11:55	5	10	100	67.14	0.40	7.15	1.425	1209.78	3.61	13.6	45.7	Clear	None
12:00	5	15	100	67.14	0.53	7.18	1.361	592.85	3.67	13.3	52	Clear	None
12:05	5	20	100	67.14	0.66	7.18	1.352	395.85	3.86	13.4	54.9	Clear	None
12:10	5	25	100	67.14	0.79	7.19	1.374	200.68	3.97	13.5	56.1	Clear	None
12:15	5	30	100	67.14	0.92	7.19	1.421	116.97	4.05	13.5	49.6	Clear	None
12:20	5	35	100	67.14	1.06	7.19	1.44	109.68	4.06	13.6	44.3	Clear	None
12:25	5	40	100	67.14	1.19	7.19	1.471	77.57	4.05	13.2	38	Clear	None
12:30	5	45	100	67.14	1.32	7.19	1.491	59.98	4.05	12.6	35.6	Clear	None
12:35	5	50	100	67.14	1.45	7.18	1.501	54.98	4.06	12.2	34.9	Clear	None
12:40	5	55	100	67.14	1.59	7.19	1.505	56.15	4.07	12.3	34.7	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-19-121			**Date**	11/14/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	65.82	**Total Depth (ft-bmp)**	71	**Water Column (ft)**	5.18	**Gallons in Well**	0.84
Purge Start	13:10	**Pump Intake (ft-bmp)**	68.5	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	13:45	**Volumes Purged**	1.26	**Sample ID**	MW-19-121_111424	**Sampled by**	Donald Richmond
Sample Time	13:35	**Gallons Purged**	1.06	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
13:20	0	0	200	65.82	0.53	7.3	2.031	11	4.82	12.1	105.6	Clear	None
13:25	5	5	200	65.82	0.79	7.29	2.022	8.46	4.24	11.9	106.2	Clear	None
13:30	5	10	200	65.82	1.06	7.26	2.013	5.87	4.18	11.9	106.9	Clear	None

Constituent Sampled	Container	Number	Preservative
TKN, T. Phosphorus	250 mL Plastic	1	H2SO4
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL
Nitrate/Nitrite	250 mL Plastic	1	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-19-122			**Date**	11/15/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	64.12	**Total Depth (ft-bmp)**	67.89	**Water Column (ft)**	3.77	**Gallons in Well**	0.61
Purge Start	12:00	**Pump Intake (ft-bmp)**	65.3	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	13:05	**Volumes Purged**	4.77	**Sample ID**	MW-19-122_111524	**Sampled by**	Donald Richmond
Sample Time	13:00	**Gallons Purged**	2.91	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
12:20	0	0	200	64.12	1.06	6.65	3.607	804	4.67	12.6	45.8	Brown	None
12:25	5	5	200	64.12	1.32	6.66	3.642	502	4.51	13.2	51.3	Brown	None
12:30	5	10	200	64.12	1.59	6.69	3.665	152	4.2	13.2	60.9	Brown	None
12:35	5	15	200	64.12	1.85	6.71	3.593	77	3.89	12.4	67.1	Brown	None
12:40	5	20	200	64.12	2.11	6.71	3.622	58	3.68	12.6	69	Brown	None
12:45	5	25	200	64.12	2.38	6.72	3.573	39	3.51	12.5	72	Brown	None
12:50	5	30	200	64.12	2.64	6.72	3.563	40	3.37	12.6	74.8	Brown	None
12:55	5	35	200	64.12	2.91	6.72	3.563	36	3.23	12.9	76.8	Brown	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-19-123			**Date**	11/14/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	65.49	**Total Depth (ft-bmp)**	71	**Water Column (ft)**	5.51	**Gallons in Well**	0.90
Purge Start	11:50	**Pump Intake (ft-bmp)**	68.5	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	12:35	**Volumes Purged**	1.77	**Sample ID**	MW-19-123_111424	**Sampled by**	Donald Richmond
Sample Time	12:25	**Gallons Purged**	1.59	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
11:55	0	0	200	65.49	0.26	6.91	1.425	6.39	7.5	11.8	58.5	Clear	None
12:00	5	5	200	65.49	0.53	6.84	1.407	5.88	6.86	11.6	67.7	Clear	None
12:05	5	10	200	65.49	0.79	6.81	1.388	5.69	6.54	10.9	82.1	Clear	None
12:10	5	15	200	65.49	1.06	6.8	1.381	5.81	6.48	10.6	88.2	Clear	None
12:15	5	20	200	65.49	1.32	6.8	1.382	5.4	6.41	10.2	94.4	Clear	None
12:20	5	25	200	65.49	1.59	6.79	1.392	4.45	6.36	9.8	99.9	Clear	None

Constituent Sampled	Container	Number	Preservative
TKN, T. Phosphorus	250 mL Plastic	1	HNO3
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL
Nitrate/Nitrite	250 mL Plastic	1	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-19-124			**Date**	11/15/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	66.12	**Total Depth (ft-bmp)**	71	**Water Column (ft)**	4.88	**Gallons in Well**	0.79
Purge Start	10:20	**Pump Intake (ft-bmp)**	68.5	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	11:25	**Volumes Purged**	3.68	**Sample ID**	MW-19-124_111524	**Sampled by**	Donald Richmond
Sample Time	11:20	**Gallons Purged**	2.91	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
10:30	0	0	200	66.12	0.53	6.61	2.619	135	1.47	13.7	-21.4	Clear	None
10:35	5	5	200	66.12	0.79	6.6	2.62	117	1.33	13.8	-26.6	Clear	None
10:40	5	10	200	66.12	1.06	6.6	2.616	82	1.03	13.7	-31.8	Clear	None
10:45	5	15	200	66.12	1.32	6.59	2.625	68	0.8	13.9	-35.9	Clear	None
10:50	5	20	200	66.12	1.59	6.59	2.622	28.43	0.49	13.8	-40.8	Clear	None
10:55	5	25	200	66.12	1.85	6.59	2.624	22.81	0.65	13.8	-43	Clear	None
11:00	5	30	200	66.12	2.11	6.59	2.628	19.75	0.71	13.8	-43.1	Clear	None
11:05	5	35	200	66.12	2.38	6.59	2.628	15.71	0.75	13.9	-43.4	Clear	None
11:10	5	40	200	66.12	2.64	6.59	2.635	12.78	0.6	14	-44.6	Clear	None
11:15	5	45	200	66.12	2.91	6.59	2.627	7.24	0.37	13.9	-46.6	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-20-126			**Date**	11/13/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	71.78	**Total Depth (ft-bmp)**	74	**Water Column (ft)**	2.22	**Gallons in Well**	0.36
Purge Start	15:05	**Pump Intake (ft-bmp)**	71.5	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	15:40	**Volumes Purged**	3.67	**Sample ID**	MW-20-126_111324	**Sampled by**	Donald Richmond
Sample Time	15:35	**Gallons Purged**	1.32	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
15:15	0	0	200	71.78	0.53	6.88	2.719	73	2.67	12.6	41.5	Cloudy	None
15:20	5	5	200	71.78	0.79	6.88	2.728	52	1.86	12.8	44.3	Cloudy	None
15:25	5	10	200	71.78	1.06	6.89	2.715	48	1.82	12.6	47.1	Cloudy	None
15:30	5	15	200	71.78	1.32	6.89	2.724	55	1.71	12.4	51.8	Cloudy	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-20-127			**Date**	11/14/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	67.34	**Total Depth (ft-bmp)**	77	**Water Column (ft)**	9.66	**Gallons in Well**	1.57
Purge Start	10:05	**Pump Intake (ft-bmp)**	74.5	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	11:15	**Volumes Purged**	1.85	**Sample ID**	MW-20-127_111424	**Sampled by**	Donald Richmond
Sample Time	11:05	**Gallons Purged**	2.91	**Replicate/ Code No.**	Dup-02_111424	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
10:20	0	0	200	67.34	0.79	6.73	2.271	4.23	4.44	11.3	137.9	Cloudy	None
10:25	5	5	200	67.34	1.06	6.68	2.264	3.27	2.64	10.9	142.6	Cloudy	None
10:30	5	10	200	67.34	1.32	6.62	2.282	3.07	1.55	10.7	143.8	Cloudy	None
10:35	5	15	200	67.34	1.59	6.59	2.36	3.4	1.29	10.7	140.3	Cloudy	None
10:40	5	20	200	67.34	1.85	6.56	2.422	3.18	0.59	10.8	100.7	Cloudy	None
10:45	5	25	200	67.34	2.11	6.56	2.428	3.24	0.45	10.8	82.1	Cloudy	None
10:50	5	30	200	67.34	2.38	6.56	2.426	3.3	0.39	10.8	73.7	Cloudy	None
10:55	5	35	200	67.34	2.64	6.56	2.416	3.15	0.29	10.9	50.7	Cloudy	None
11:00	5	40	200	67.34	2.91	6.56	2.412	3.13	0.26	10.8	44.4	Cloudy	None

Constituent Sampled	Container	Number	Preservative
TKN, T. Phosphorus	250 mL Plastic	2	H2SO4
1,4-Dioxane 8270D SIM	40 mL Glass	6	HCL
Nitrate/Nitrite	250 mL Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-20-128			**Date**	11/15/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	65.65	**Total Depth (ft-bmp)**	70	**Water Column (ft)**	4.35	**Gallons in Well**	0.71
Purge Start	09:00	**Pump Intake (ft-bmp)**	67.5	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	09:55	**Volumes Purged**	3.35	**Sample ID**	MW-20-128_111524	**Sampled by**	Donald Richmond
Sample Time	09:50	**Gallons Purged**	2.38	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
09:10	0	0	200	65.65	0.53	7	2.356	223	2.27	12.3	137.2	Clear	None
09:15	5	5	200	65.65	0.79	6.95	2.361	124	1.85	12	137.2	Clear	None
09:20	5	10	200	65.65	1.06	6.94	2.362	71	1.53	11.9	136.5	Clear	None
09:25	5	15	200	65.65	1.32	6.96	2.356	38	1.36	11.8	135	Clear	None
09:30	5	20	200	65.65	1.59	6.98	2.352	25	1.35	11.8	133.3	Clear	None
09:35	5	25	200	65.65	1.85	7.01	2.357	15	1.29	11.8	131.5	Clear	None
09:40	5	30	200	65.65	2.11	7.02	2.36	15	1.31	11.8	130.1	Clear	None
09:45	5	35	200	65.65	2.38	7.02	2.362	16.48	1.31	11.8	128.9	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-20-129			**Date**	11/14/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	61.00	**Total Depth (ft-bmp)**	69	**Water Column (ft)**	8.00	**Gallons in Well**	1.30
Purge Start	14:25	**Pump Intake (ft-bmp)**	66.5	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	15:45	**Volumes Purged**	1.62	**Sample ID**	MW-20-129_111424	**Sampled by**	Donald Richmond
Sample Time	15:10	**Gallons Purged**	2.11	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
14:35	0	0	200	61.00	0.53	6.97	1.124	12.49	0.85	13.5	-9.3	Clear	None
14:40	5	5	200	61.00	0.79	6.96	1.117	11.76	0.53	13.3	-34	Clear	None
14:45	5	10	200	61.00	1.06	6.96	1.126	11.45	0.43	13.4	-38.9	Clear	None
14:50	5	15	200	61.00	1.32	6.96	1.131	12.41	0.38	13.3	-41.2	Clear	None
14:55	5	20	200	61.00	1.59	6.96	1.141	10.31	0.32	13.2	-43.6	Clear	None
15:00	5	25	200	61.00	1.85	6.96	1.161	9.26	0.28	13	-45	Clear	None
15:05	5	30	200	61.00	2.11	6.96	1.183	7.72	0.28	13.2	-45.5	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-20-130			**Date**	11/12/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	67.68	**Total Depth (ft-bmp)**	68	**Water Column (ft)**	0.32	**Gallons in Well**	0.05
Purge Start	11:45	**Pump Intake (ft-bmp)**	68	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	12:45	**Volumes Purged**	47.60	**Sample ID**	MW-20-130_111224	**Sampled by**	Donald Richmond
Sample Time	12:35	**Gallons Purged**	2.38	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
12:00	0	0	200	67.68	0.79	6.45	1.268	51	0.28	12.3	-10.9	Clear	None
12:05	5	5	200	67.68	1.06	6.45	1.272	48.93	0.23	12.4	-12.6	Clear	None
12:10	5	10	200	67.68	1.32	6.46	1.269	48	0.21	12.3	-13.6	Clear	None
12:15	5	15	200	67.68	1.59	6.47	1.242	42	0.2	10.9	-13	Clear	None
12:20	5	20	200	67.68	1.85	6.48	1.183	43	0.42	9.7	-10.6	Clear	None
12:25	5	25	200	67.68	2.11	6.49	1.194	35	0.52	9.7	-8.1	Clear	None
12:30	5	30	200	67.68	2.38	6.49	1.203	37.98	0.42	9.8	-8.1	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL
PFAS	250mL HDPE Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot

1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2

Condition of Well: Good condition

Well Completion: Stick-up

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-20-131			**Date**	11/19/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	51.1 degrees F and Mostly Cloudy. The wind is blowing SE at 18.3 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	5.51	**Total Depth (ft-bmp)**	8.65	**Water Column (ft)**	3.14	**Gallons in Well**	0.51
Purge Start	09:55	**Pump Intake (ft-bmp)**	6.65	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	11:00	**Volumes Purged**	6.73	**Sample ID**	MW-20-131_111924	**Sampled by**	Austin Westhuis
Sample Time	10:55	**Gallons Purged**	3.43	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
10:00	0	0	200	6.08	0.26	7.18	10.027	29.33	4.22	16	122.3	Clear	None
10:05	5	5	200	6.08	0.53	7.13	8.762	18.17	2.79	16	32.2	Clear	None
10:10	5	10	200	6.08	0.79	7.09	8.252	7.23	2.18	16.1	35.5	Clear	None
10:15	5	15	200	6.08	1.06	7.09	8.096	6.67	2.02	16.1	36.6	Clear	None
10:20	5	20	200	6.08	1.32	7.09	7.783	6.02	1.75	16.1	43.3	Clear	None
10:25	5	25	200	6.08	1.59	7.09	7.671	5.52	1.52	16.1	49.7	Clear	None
10:30	5	30	200	6.08	1.85	7.09	7.347	5.14	1.31	16.1	56.8	Clear	None
10:35	5	35	200	6.08	2.11	7.09	7.081	4.94	1.11	16.1	61.3	Clear	None
10:40	5	40	200	6.08	2.38	7.09	6.82	4.66	0.96	16.1	63.7	Clear	None
10:45	5	45	200	6.08	2.64	7.09	6.577	4.09	0.84	16.1	66	Clear	None
10:50	5	50	200	6.08	2.91	7.09	6.412	3.71	0.77	16.1	67.4	Clear	None
10:55	5	55	200	6.08	3.17	7.09	6.397	3.24	0.76	16.1	65.4	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Well Locked at Arrival: yes
Condition of Well: Good condition
Well Locked at Departure: yes
Well Completion: Flush mount
Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-20-132			**Date**	11/19/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	53.1 degrees F and Fog/Mist. The wind is blowing SE at 15.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	5.79	**Total Depth (ft-bmp)**	10.81	**Water Column (ft)**	5.02	**Gallons in Well**	0.82
Purge Start	11:35	**Pump Intake (ft-bmp)**	8.81	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	12:10	**Volumes Purged**	2.26	**Sample ID**	MW-20-132_111924	**Sampled by**	Austin Westhuis
Sample Time	12:05	**Gallons Purged**	1.85	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
11:40	0	0	200	6.22	0.26	7.14	4.416	12.15	0.28	15.7	4.1	Clear	None
11:45	5	5	200	6.22	0.53	7.15	4.351	9.47	0.23	15.8	-21.9	Clear	None
11:50	5	10	200	6.22	0.79	7.15	4.269	8.75	0.17	15.8	-40.5	Clear	None
11:55	5	15	200	6.22	1.06	7.14	4.235	7.18	0.15	15.8	-48.3	Clear	None
12:00	5	20	200	6.22	1.32	7.14	4.215	6.73	0.14	15.8	-51.4	Clear	None
12:05	5	25	200	6.22	1.59	7.14	4.205	6.42	0.14	15.8	-52.2	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-21-133			**Date**	11/18/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	46.9 degrees F and Fog/Mist.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	13.07	**Total Depth (ft-bmp)**	18.76	**Water Column (ft)**	5.69	**Gallons in Well**	0.92
Purge Start	11:45	**Pump Intake (ft-bmp)**	16.26	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	12:15	**Volumes Purged**	1.73	**Sample ID**	MW-21-133_111824	**Sampled by**	Austin Westhuis
Sample Time	12:10	**Gallons Purged**	1.59	**Replicate/ Code No.**	DUP-06_111824	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
11:50	0	0	200	13.07	0.26	6.84	0.997	11.23	0.45	14.8	82.9	Clear	None
11:55	5	5	200	13.98	0.53	6.92	0.982	5.96	0.47	14.8	76.5	Clear	None
12:00	5	10	200	14.00	0.79	6.96	0.974	4.17	0.67	14.7	81	Clear	None
12:05	5	15	200	14.00	1.06	6.96	0.974	3.92	0.65	14.8	84	Clear	None
12:10	5	20	200	14.00	1.32	6.96	0.975	3.81	0.63	14.8	84.9	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	4	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-21-134			**Date**	11/18/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	46.9 degrees F and Fog/Mist.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	14.53	**Total Depth (ft-bmp)**	20.08	**Water Column (ft)**	5.55	**Gallons in Well**	0.90
Purge Start	12:45	**Pump Intake (ft-bmp)**	17.58	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	13:15	**Volumes Purged**	1.77	**Sample ID**	MW-21-134_111824	**Sampled by**	Austin Westhuis
Sample Time	13:10	**Gallons Purged**	1.59	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
12:50	0	0	200	14.90	0.26	7.04	0.892	27.08	0.9	15.2	138.6	Clear	None
12:55	5	5	200	14.31	0.53	7.01	0.898	11.12	0.93	15.2	122.3	Clear	None
13:00	5	10	200	14.31	0.79	6.97	0.901	6.75	0.94	15.2	113.1	Clear	None
13:05	5	15	200	14.31	1.06	6.97	0.903	6.41	0.92	15.2	112.3	Clear	None
13:10	5	20	200	14.31	1.32	6.97	0.902	6.22	0.93	15.2	112.6	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-21-139			**Date**	11/12/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	39.9 degrees F and Partly Cloudy. The wind is blowing NE at 8.1 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	3.15	**Total Depth (ft-bmp)**	12	**Water Column (ft)**	8.85	**Gallons in Well**	1.44
Purge Start	10:15	**Pump Intake (ft-bmp)**	10	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	11:25	**Volumes Purged**	2.02	**Sample ID**	MW-21-139_111224	**Sampled by**	Jackie Schulte
Sample Time	11:10	**Gallons Purged**	2.91	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
10:20	0	0	100	3.54	0.13	8.24	1.088	2.27	1.55	13.6	93	Clear	None
10:25	5	5	100	3.89	0.26	8.24	1.087	2.08	0.96	14	54.5	Clear	None
10:30	5	10	100	4.15	0.40	8.01	1.057	1.99	0.65	14.5	-86.9	Clear	None
10:36	6	16	100	4.22	0.00	7.89	1.03	1.85	0.53	14.6	-114.5	Clear	None
10:40	4	20	100	4.21	0.53	7.83	1.011	1.95	0.46	14.6	-119.8	Clear	None
10:45	5	25	100	4.31	0.79	7.81	1	1.84	0.4	14.7	-121.2	Clear	None
10:50	5	30	100	4.36	0.00	7.79	0.996	2.06	0.4	14.7	-122.2	Clear	None
10:55	5	35	100	4.36	0.00	7.75	0.987	1.87	0.35	14.5	-121.6	Clear	None
11:00	5	40	100	4.36	0.00	7.72	0.981	1.92	0.38	14	-118.7	Clear	None
11:05	5	45	100	4.36	0.00	7.72	0.974	1.91	0.4	13.1	-116.7	Clear	None
11:10	5	50	100	4.36	0.00	7.71	0.976	2	0.41	13	-115.1	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL
PFAS	250mL HDPE Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Well Locked at Arrival: yes
Condition of Well: Good condition
Well Locked at Departure: yes
Well Completion: Stick-up
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-21-140			**Date**	11/12/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	69.11	**Total Depth (ft-bmp)**	72	**Water Column (ft)**	2.89	**Gallons in Well**	0.47
Purge Start	13:25	**Pump Intake (ft-bmp)**	69.5	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	14:25	**Volumes Purged**	5.62	**Sample ID**	MW-21-140_111224	**Sampled by**	Donald Richmond
Sample Time	14:20	**Gallons Purged**	2.64	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
13:35	0	0	200	69.11	0.53	7.06	0.629	48	1.61	11.6	34.4	Clear	None
13:40	5	5	200	69.11	0.79	7.04	0.642	57	1.93	12.4	-13.7	Clear	None
13:45	5	10	200	69.11	1.06	7.03	0.639	49	1.81	12	-8.4	Clear	None
13:50	5	15	200	69.11	1.32	7.01	0.645	37	1.61	12.2	-4.6	Clear	None
13:55	5	20	200	69.11	1.59	7	0.648	27	1.54	12.2	-4	Clear	None
14:00	5	25	200	69.11	1.85	6.99	0.648	23	1.43	12.2	-3.8	Clear	None
14:05	5	30	200	69.11	2.11	6.99	0.65	18	1.39	12	-3.8	Clear	None
14:10	5	35	200	69.11	2.38	6.99	0.646	16	1.41	12	-3.7	Clear	None
14:15	5	40	200	69.11	2.64	6.98	0.65	15	1.4	12.2	-3.8	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-21-141			**Date**	11/15/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	45.0 degrees F and Cloudy. The wind is blowing W/NW at 5.8 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	77.84	**Total Depth (ft-bmp)**	79.7	**Water Column (ft)**	1.86	**Gallons in Well**	0.30
Purge Start	08:45	**Pump Intake (ft-bmp)**	79.5	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	09:45	**Volumes Purged**	5.30	**Sample ID**	MW-21-141_111524	**Sampled by**	Billy Cobern
Sample Time	09:45	**Gallons Purged**	1.59	**Replicate/ Code No.**	DUP-07_111524	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
08:50	0	0	100	79.50	0.13	6.77	1.249	51.87	1.64	13	17.8	Clear	None
08:55	5	5	100	79.50	0.26	6.77	1.239	54.67	1.56	12.9	17.9	Clear	None
09:00	5	10	100	79.50	0.40	6.77	1.238	50.59	1.49	12.9	18.1	Clear	None
09:05	5	15	100	79.50	0.53	6.77	1.221	55.74	1.33	12.3	19.3	Clear	None
09:10	5	20	100	79.50	0.66	6.75	1.217	52.37	1.26	12.2	20.6	Clear	None
09:15	5	25	100	79.50	0.79	6.75	1.212	53.79	1.19	11.9	21.5	Clear	None
09:20	5	30	100	79.50	0.92	6.76	1213	54.99	1.17	11.5	22.8	Clear	None
09:25	5	35	100	79.50	1.06	6.74	1.215	56.48	1.24	11	23.9	Clear	None
09:30	5	40	100	79.50	1.19	6.75	1.217	54.15	1.38	11.2	24	Clear	None
09:35	5	45	100	79.50	1.32	6.75	1.219	62.11	1.49	11.3	23	Clear	None
09:40	5	50	100	79.50	1.45	6.75	1.2	56.46	1.55	11.4	22.1	Clear	None
09:45	5	55	100	79.50	1.59	6.75	1.212	52.67	1.48	11.4	19.7	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	6	HCL

Comments: Could not measure drawdown due to pump interference. Turbidity didn't stabilize.

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-21-142			**Date**	11/13/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	67.10	**Total Depth (ft-bmp)**	76.5	**Water Column (ft)**	9.40	**Gallons in Well**	1.53
Purge Start	13:15	**Pump Intake (ft-bmp)**	74	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	14:25	**Volumes Purged**	2.07	**Sample ID**	MW-21-142_111324	**Sampled by**	Donald Richmond
Sample Time	14:20	**Gallons Purged**	3.17	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
13:30	0	0	200	67.10	0.79	6.8	2.228	563	0.46	13.1	-77	Cloudy	None
13:35	5	5	200	67.10	1.06	6.79	2.165	474	0.27	13	-74.9	Cloudy	None
13:40	5	10	200	67.10	1.32	6.79	2.101	382	0.19	12.8	-73.9	Cloudy	None
13:45	5	15	200	67.10	1.59	6.8	2.028	244	0.1	12.7	-73.3	Cloudy	None
13:50	5	20	200	67.10	1.85	6.8	1.988	214	0.05	12.6	-73.2	Cloudy	None
13:55	5	25	200	67.10	2.11	6.8	1.966	203	0.01	12.7	-73.4	Cloudy	None
14:00	5	30	200	67.10	2.38	6.8	1.965	175	0	12.7	-73.7	Cloudy	None
14:05	5	35	200	67.10	2.64	6.79	1.947	139	0	12.8	-74.4	Cloudy	None
14:10	5	40	200	67.10	2.91	6.79	1.944	135	0	12.8	-74.6	Cloudy	None
14:15	5	45	200	67.10	3.17	6.79	1.923	134	0	12.7	-74.9	Cloudy	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-143			**Date**	11/15/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	45.0 degrees F and Cloudy. The wind is blowing W/NW at 5.8 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	17.65	**Total Depth (ft-bmp)**	31	**Water Column (ft)**	13.35	**Gallons in Well**	2.17
Purge Start	09:05	**Pump Intake (ft-bmp)**	28	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	10:10	**Volumes Purged**	0.73	**Sample ID**	MW-22-143_111524	**Sampled by**	Jackie Schulte
Sample Time	10:05	**Gallons Purged**	1.59	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
09:10	0	0	100	17.80	0.13	6.8	2.595	25.76	2.82	14	-60	Clear	None
09:15	5	5	100	17.82	0.26	6.9	2.653	12.25	0.79	14	-83.2	Clear	None
09:20	5	10	100	17.83	0.40	6.94	2.667	5.6	0.51	14	-89	Clear	None
09:25	5	15	100	17.84	0.53	6.96	2.677	6.9	0.39	14	-91.7	Clear	None
09:30	5	20	100	17.84	0.66	6.97	2.699	8.65	0.33	13.9	-92.9	Clear	None
09:35	5	25	100	17.84	0.79	6.98	2.718	11.98	0.29	13.9	-93.5	Clear	None
09:40	5	30	100	17.84	0.92	6.98	2.738	13.37	0.26	13.9	0.26	Clear	None
09:45	5	35	100	17.84	1.06	6.98	2.761	4.68	0.24	13.9	-94.4	Clear	None
09:50	5	40	100	17.84	1.19	6.98	2.796	6.66	0.21	13.8	-94.7	Clear	None
09:55	5	45	100	17.84	1.32	6.98	2.823	5.43	0.21	13.8	-94.9	Clear	None
10:00	5	50	100	17.84	1.45	7.02	2.849	4.33	0.2	13.8	-95.2	Clear	None
10:05	5	55	100	17.84	1.59	6.99	2.861	4.88	0.19	13.8	-95.2	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Well Locked at Arrival: yes
Condition of Well: Missing bolts,Good condition
Well Locked at Departure: yes
Well Completion: Flush mount
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-144			**Date**	11/13/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	42.1 degrees F and Clear. The wind is blowing SE at 12.8 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	13.83	**Total Depth (ft-bmp)**	24.5	**Water Column (ft)**	10.67	**Gallons in Well**	1.73
Purge Start	11:35	**Pump Intake (ft-bmp)**	22	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	12:40	**Volumes Purged**	0.92	**Sample ID**	MW-22-144_111324	**Sampled by**	Jackie Schulte
Sample Time	12:35	**Gallons Purged**	1.59	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
11:40	0	0	100	13.83	0.13	7.06	1.194	61.8	1.82	15	93.3	Clear	None
11:45	5	5	100	13.83	0.26	7.03	1.2	10.92	0.59	15.2	86.7	Clear	None
11:50	5	10	100	13.83	0.40	7.03	1.207	10.73	0.46	15.3	82	Clear	None
11:55	5	15	100	13.83	0.53	7.03	1.213	9.99	0.31	15.2	78.8	Clear	None
12:00	5	20	100	13.83	0.66	7.03	1.214	8.5	0.26	15.3	76.1	Clear	None
12:05	5	25	100	13.83	0.79	7.03	1.216	7.65	0.22	15.4	73.2	Clear	None
12:10	5	30	100	13.83	0.92	7.02	1.217	7.95	0.2	15.5	71.4	Clear	None
12:15	5	35	100	13.83	1.06	7.03	1.219	7.5	0.19	15.4	69.2	Clear	None
12:20	5	40	100	13.83	1.19	7.03	1.221	7.1	0.17	15.5	68	Clear	None
12:25	5	45	100	13.83	1.32	7.03	1.221	7.58	0.16	15.5	66.1	Clear	None
12:30	5	50	100	13.83	1.45	7.03	1.221	10	0.15	15.6	64.9	Clear	None
12:35	5	55	100	13.83	1.59	7.03	1.225	8.33	0.14	15.5	64.5	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments: Well did not stabilize. Sampled after 1 hour purge.

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-145			**Date**	11/13/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	37.0 degrees F and Clear. The wind is blowing E/SE at 8.1 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	13.44	**Total Depth (ft-bmp)**	15.5	**Water Column (ft)**	2.06	**Gallons in Well**	0.33
Purge Start	10:45	**Pump Intake (ft-bmp)**	14	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	11:30	**Volumes Purged**	3.21	**Sample ID**	MW-22-145_111324	**Sampled by**	Jackie Schulte
Sample Time	11:25	**Gallons Purged**	1.06	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
10:50	0	0	100	13.51	0.13	7.02	1.278	14.56	1.19	15.3	-10.4	Clear	None
10:55	5	5	100	13.51	0.26	7.03	1.292	3.88	0.8	15.3	3.6	Clear	None
11:00	5	10	100	13.51	0.40	7.03	1.291	2.67	0.66	15.3	13.9	Clear	None
11:05	5	15	100	13.51	0.53	7.03	1.289	2.43	0.57	15.5	20	Clear	None
11:10	5	20	100	13.51	0.66	7.03	1.288	2.19	0.51	15.5	25.9	Clear	None
11:15	5	25	100	13.51	0.79	7.04	1.279	2.22	0.46	15.3	28.4	Clear	None
11:20	5	30	100	13.51	0.92	7.04	1.272	2.17	0.43	15.4	30.8	Clear	None
11:25	5	35	100	13.51	1.06	7.04	1.267	2.05	0.42	15.3	33.4	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Spencer st

Condition of Well: Good condition

Well Completion: Flush mount

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-146			**Date**	11/15/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	45.0 degrees F and Cloudy. The wind is blowing W/NW at 5.8 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	7.72	**Total Depth (ft-bmp)**	10.5	**Water Column (ft)**	2.78	**Gallons in Well**	0.45
Purge Start	10:35	**Pump Intake (ft-bmp)**	9	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	11:30	**Volumes Purged**	2.93	**Sample ID**	MW-22-146_111524	**Sampled by**	Jackie Schulte
Sample Time	11:25	**Gallons Purged**	1.32	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
10:40	0	0	100	7.80	0.13	7.12	0.983	39.6	1.34	14.5	57.4	Clear	None
10:45	5	5	100	7.88	0.26	7.08	0.934	14	1.47	14.5	68.6	Clear	None
10:50	5	10	100	7.97	0.40	7.13	0.902	11.13	4.54	14.6	95.4	Clear	None
10:55	5	15	100	8.06	0.53	7.13	0.894	7.04	5.19	14.7	110.5	Clear	None
11:00	5	20	100	8.13	0.66	7.17	0.891	4.84	4.96	14.7	93.6	Clear	None
11:05	5	25	100	8.13	0.79	7.14	0.893	5.02	4.91	14.3	116.9	Clear	None
11:10	5	30	100	8.13	0.92	7.12	0.892	3.96	4.31	14.4	125.8	Clear	None
11:15	5	35	100	8.13	1.06	7.12	0.893	3.38	3.99	14.4	132.3	Clear	None
11:20	5	40	100	8.13	1.19	7.12	0.894	3.31	4.05	14.1	137.1	Clear	None
11:25	5	45	100	8.21	1.32	7.12	0.891	3.1	4.07	14.5	140.1	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-147			**Date**	11/14/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	45.0 degrees F and Cloudy. The wind is blowing SE at 13.9 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	9.58	**Total Depth (ft-bmp)**	12.5	**Water Column (ft)**	2.92	**Gallons in Well**	0.47
Purge Start	12:25	**Pump Intake (ft-bmp)**	11	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	13:00	**Volumes Purged**	1.68	**Sample ID**	MW-22-147_111424	**Sampled by**	Jackie Schulte
Sample Time	12:55	**Gallons Purged**	0.79	**Replicate/ Code No.**	DUP-08_111424	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
12:30	0	0	100	9.76	0.13	7.17	1.29	8.6	3.8	15.2	63.7	Clear	None
12:35	5	5	100	9.84	0.26	7.1	1.26	7.99	3.66	15.4	83	Clear	None
12:40	5	10	100	9.90	0.40	7.09	1.245	5.1	3.54	15.5	92.9	Clear	None
12:45	5	15	100	10.00	0.53	7.09	1.244	3.23	3.43	15.4	100	Clear	None
12:50	5	20	100	10.05	0.66	7.08	1.254	2.65	3.45	15.4	105.9	Clear	None
12:55	5	25	100	10.05	0.79	7.08	1.255	2.52	3.45	15.5	109.5	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	4	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-148			**Date**	11/14/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	45.0 degrees F and Fog/Mist. The wind is blowing SE at 10.3 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	24.50	**Total Depth (ft-bmp)**	29.5	**Water Column (ft)**	5.00	**Gallons in Well**	0.81
Purge Start	13:15	**Pump Intake (ft-bmp)**	27	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	14:20	**Volumes Purged**	1.96	**Sample ID**	MW-22-148_111424	**Sampled by**	Jackie Schulte
Sample Time	14:15	**Gallons Purged**	1.59	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
13:20	0	0	100	24.82	0.13	7.82	0.003	950	10	12	69.4	Clear	None
13:25	5	5	100	24.92	0.26	7.06	0.9	10.85	1.99	12.4	100.1	Clear	None
13:30	5	10	100	25.02	0.40	7.09	0.897	9.53	1.54	12.4	88.5	Clear	None
13:35	5	15	100	25.12	0.53	7.06	0.896	12.36	1.3	12.3	98	Clear	None
13:40	5	20	100	25.19	0.66	7.06	0.895	14.02	1.2	12.3	102.2	Clear	None
13:45	5	25	100	25.25	0.79	7.06	0.895	9.03	1.09	12.2	104.7	Clear	None
13:50	5	30	100	25.31	0.92	7.06	0.893	6.8	1.11	12.2	105.9	Clear	None
13:55	5	35	100	25.38	1.06	7.06	0.894	12.05	1.13	12.3	106.6	Clear	None
14:00	5	40	100	25.42	1.19	7.06	0.896	9.44	1.17	11.9	107.1	Clear	None
14:05	5	45	100	25.47	1.32	7.07	0.897	5.53	1.22	11.7	108.2	Clear	None
14:10	5	50	100	25.50	1.45	7.07	0.895	5.06	1.22	11.6	109.2	Clear	None
14:15	5	55	100	25.52	1.59	7.07	0.893	5.14	1.24	11.7	109.1	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-149			**Date**	11/15/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	45.0 degrees F and Cloudy. The wind is blowing W/NW at 5.8 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	6.22	**Total Depth (ft-bmp)**	10.5	**Water Column (ft)**	4.28	**Gallons in Well**	0.70
Purge Start	11:50	**Pump Intake (ft-bmp)**	9	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	12:30	**Volumes Purged**	1.31	**Sample ID**	MW-22-149_111524	**Sampled by**	Jackie Schulte
Sample Time	12:25	**Gallons Purged**	0.92	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
11:55	0	0	100	6.32	0.13	7.3	0.602	2.69	6.21	15.9	157.8	Clear	None
12:00	5	5	100	6.41	0.26	7.28	0.599	2.74	6	15.8	101.3	Clear	None
12:05	5	10	100	6.51	0.40	7.24	0.599	2.45	6.14	15.8	136.4	Clear	None
12:10	5	15	100	6.58	0.53	7.24	0.6	2.3	6.25	15.7	146.1	Clear	None
12:15	5	20	100	6.69	0.66	7.23	0.599	2.14	6.35	16	152.8	Clear	None
12:20	5	25	100	6.81	0.79	7.22	0.6	2.13	6.48	16.1	157.4	Clear	None
12:25	5	30	100	6.89	0.92	7.22	0.602	2.11	6.41	15.9	161.1	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-150			**Date**	11/19/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	57.0 degrees F and Cloudy. The wind is blowing S/SE at 12.8 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	5.70	**Total Depth (ft-bmp)**	17.94	**Water Column (ft)**	12.24	**Gallons in Well**	1.99
Purge Start	13:10	**Pump Intake (ft-bmp)**	15.94	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	13:50	**Volumes Purged**	1.06	**Sample ID**	MW-22-150_111924	**Sampled by**	Austin Westhuis
Sample Time	13:45	**Gallons Purged**	2.11	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
13:15	0	0	200	6.71	0.26	7.4	3.958	38.41	0.53	16.2	53.5	Clear	None
13:20	5	5	200	7.18	0.53	7.45	3.961	21.34	0.6	16.3	54.7	Clear	None
13:25	5	10	200	7.56	0.79	7.46	3.964	11.64	0.65	16.2	76.7	Clear	None
13:30	5	15	200	7.79	1.06	7.44	3.969	9.81	0.62	16.2	62.1	Clear	None
13:35	5	20	200	7.94	1.32	7.42	3.974	9.02	0.59	16.1	52.4	Clear	None
13:40	5	25	200	8.04	1.59	7.42	3.975	8.48	0.57	16.1	48.9	Clear	None
13:45	5	30	200	8.07	1.85	7.41	3.978	8.22	0.55	16.1	43.9	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot

1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6

Condition of Well: Good condition

Well Completion: Flush mount

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-151			**Date**	11/19/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	57.0 degrees F and Cloudy. The wind is blowing S/SE at 12.8 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	6.42	**Total Depth (ft-bmp)**	14.94	**Water Column (ft)**	8.52	**Gallons in Well**	1.38
Purge Start	14:30	**Pump Intake (ft-bmp)**	12.94	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	15:05	**Volumes Purged**	1.34	**Sample ID**	MW-22-151_111924	**Sampled by**	Austin Westhuis
Sample Time	15:00	**Gallons Purged**	1.85	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
14:35	0	0	200	7.22	0.26	6.83	2.54	167.08	0.47	17.2	-59	Clear	None
14:40	5	5	200	7.48	0.53	6.83	2.525	88.43	0.28	17.2	-65.9	Clear	None
14:45	5	10	200	7.59	0.79	6.84	2.497	72.73	0.22	17.3	-69	Clear	None
14:50	5	15	200	7.68	1.06	6.84	2.474	56.51	0.24	17.3	-68.7	Clear	None
14:55	5	20	200	7.74	1.32	6.84	2.472	55.36	0.24	17.4	-67.8	Clear	None
15:00	5	25	200	7.75	1.59	6.84	2.474	53.47	0.25	17.4	-67.6	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-152			**Date**	11/20/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	8.02	**Total Depth (ft-bmp)**	14.88	**Water Column (ft)**	6.86	**Gallons in Well**	1.11
Purge Start	10:45	**Pump Intake (ft-bmp)**	12.3	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	11:45	**Volumes Purged**	2.14	**Sample ID**	MW-22-152_112024	**Sampled by**	Donald Richmond
Sample Time	11:30	**Gallons Purged**	2.38	**Replicate/ Code No.**	Dup-08_112024	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
10:50	0	0	200	8.02	0.26	7.3	0.915	15.65	1.96	15	-15.8	Clear	None
10:55	5	5	200	8.02	0.53	7.21	0.788	9.91	0.86	14.9	-2.5	Clear	None
11:00	5	10	200	8.02	0.79	7.15	0.775	5.34	0.33	14.9	7.6	Clear	None
11:05	5	15	200	8.02	1.06	7.14	0.771	3.71	0.25	14.9	10.3	Clear	None
11:10	5	20	200	8.02	1.32	7.13	0.766	3.49	0.18	14.9	14.5	Clear	None
11:15	5	25	200	8.02	1.59	7.13	0.758	3.27	0.14	14.5	17.6	Clear	None
11:20	5	30	200	8.02	1.85	7.12	0.753	3.35	0.09	14.6	20.5	Clear	None
11:25	5	35	200	8.02	2.11	7.12	0.751	3.35	0.06	14.4	22.3	Clear	None
11:30	5	40	200	8.02	2.38	7.12	0.748	4.29	0.05	14.4	23	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	4	None
VOCs SW-846 8260B	40 mL Glass	6	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-153			**Date**	11/12/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	42.1 degrees F and Partly Cloudy. The wind is blowing E/NE at 10.3 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	11.54	**Total Depth (ft-bmp)**	30	**Water Column (ft)**	18.46	**Gallons in Well**	3.00
Purge Start	13:30	**Pump Intake (ft-bmp)**	27	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	14:35	**Volumes Purged**	0.53	**Sample ID**	MW-22-153_111224	**Sampled by**	Jackie Schulte
Sample Time	14:30	**Gallons Purged**	1.59	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
13:35	0	0	100	11.54	0.13	7.13	1.763	2.94	2.19	14.2	-81.8	Clear	None
13:40	5	5	100	11.54	0.26	7.07	1.735	4.3	0.69	14.7	-75.4	Clear	None
13:45	5	10	100	11.54	0.40	7.06	1.731	4.25	0.43	14.9	-77	Clear	None
13:50	5	15	100	11.54	0.53	7.03	1.833	5.08	0.31	14.9	-76.3	Clear	None
13:55	5	20	100	11.54	0.66	7.03	1.843	7.3	0.46	14.9	-79.6	Clear	None
14:00	5	25	100	11.54	0.79	7.03	1.866	6.8	0.24	14.8	-81.6	Clear	None
14:05	5	30	100	11.54	0.92	7.03	1.873	8.5	0.2	14.8	-83.1	Clear	None
14:10	5	35	100	11.54	1.06	7.03	1.892	10	0.15	14.8	-84.6	Clear	None
14:15	5	40	100	11.54	1.19	7.04	1.907	4.8	0.13	14.8	-86.1	Clear	None
14:20	5	45	100	11.54	1.32	7.04	1.923	4.25	0.11	14.9	-87.4	Clear	None
14:25	5	50	100	11.54	1.45	7.04	1.939	5.9	0.11	14.9	-87.9	Clear	None
14:30	5	55	100	11.54	1.59	7.04	1.943	3.5	0.12	14.8	-88.3	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM,VOCs SW-846	40 mL Glass	3	HCL

Comments: Well did not stabilize. Sample taken after one hour purge.

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-154			**Date**	11/20/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	5.94	**Total Depth (ft-bmp)**	10.58	**Water Column (ft)**	4.64	**Gallons in Well**	0.75
Purge Start	09:15	**Pump Intake (ft-bmp)**	8	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	10:15	**Volumes Purged**	3.17	**Sample ID**	MW-22-154_112024	**Sampled by**	Donald Richmond
Sample Time	10:05	**Gallons Purged**	2.38	**Replicate/ Code No.**	MW-22-154_112024	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
09:35	0	0	200	5.94	1.06	6.74	10.749	166	0.96	13.2	-39.3	Clear	None
09:40	5	5	200	5.94	1.32	6.81	10.139	26	1.12	13.1	-40.7	Clear	None
09:45	5	10	200	5.94	1.59	6.82	10.017	15	1.26	13.2	-39.2	Clear	None
09:50	5	15	200	5.94	1.85	6.84	9.859	12	1.32	13.3	-36.9	Clear	None
09:55	5	20	200	5.94	2.11	6.85	9.794	11	1.26	13.4	-35.8	Clear	None
10:00	5	25	200	5.94	2.38	6.85	9.667	10	1.18	13.1	-34.3	Clear	None

Constituent Sampled	Container	Number	Preservative
VOCs SW-846 8260B	40 mL Glass	9	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-155			**Date**	11/13/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	30.0 degrees F and Clear. The wind is blowing E at 5.8 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	12.80	**Total Depth (ft-bmp)**	30.5	**Water Column (ft)**	17.70	**Gallons in Well**	2.88
Purge Start	09:15	**Pump Intake (ft-bmp)**	28	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	10:05	**Volumes Purged**	0.37	**Sample ID**	MW-22-155_111324	**Sampled by**	Jackie Schulte
Sample Time	10:00	**Gallons Purged**	1.06	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
09:20	0	0	100	12.84	0.13	6.74	2.357	3.76	1.03	13.3	-51.1	Clear	None
09:25	5	5	100	12.84	0.26	6.79	2.361	4.08	0.58	13.5	-73.2	Clear	None
09:30	5	10	100	12.84	0.40	6.82	2.369	4.66	0.4	13.5	-78.5	Clear	None
09:35	5	15	100	12.84	0.53	6.84	2.377	4.48	0.34	13.4	-81.1	Clear	None
09:40	5	20	100	12.84	0.66	6.85	2.385	5.3	0.31	13.5	-82.5	Clear	None
09:45	5	25	100	12.84	0.79	6.86	2.383	5.17	0.27	13.4	-83.7	Clear	None
09:50	5	30	100	12.84	0.92	6.86	2.396	5.58	0.26	13.6	-84.7	Clear	None
09:55	5	35	100	12.84	1.06	6.87	2.387	5.69	0.26	13.4	-85	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments: Rewrote well on stick up well

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-156			**Date**	11/12/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	46.9 degrees F and Mostly Clear. The wind is blowing E at 5.8 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	13.98	**Total Depth (ft-bmp)**	28	**Water Column (ft)**	14.02	**Gallons in Well**	2.28
Purge Start	14:55	**Pump Intake (ft-bmp)**	27	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	16:00	**Volumes Purged**	0.75	**Sample ID**	MW-22-156_111224	**Sampled by**	Jackie Schulte
Sample Time	15:55	**Gallons Purged**	1.72	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
15:00	0	0	100	14.00	0.13	7.32	1.092	3.23	1.22	15.5	-98.5	Clear	None
15:05	5	5	100	14.00	0.26	7.27	1.117	3.36	0.52	15.3	-96.8	Clear	None
15:10	5	10	100	14.00	0.40	7.22	1.217	4.17	0.33	15.4	-96.6	Clear	None
15:15	5	15	100	14.00	0.53	7.2	1.268	4.24	0.3	15	-96.4	Clear	None
15:20	5	20	100	14.00	0.66	7.19	1.281	3.25	0.32	14.7	-95.7	Clear	None
15:25	5	25	100	14.00	0.79	7.19	1.291	3.81	0.29	15.2	-96.5	Clear	None
15:30	5	30	100	14.00	0.92	7.18	1.306	2.9	0.26	15.1	-96.9	Clear	None
15:35	5	35	100	14.00	1.06	7.17	1.308	2.4	0.23	14.9	-97.1	Clear	None
15:40	5	40	100	14.00	1.19	7.17	1.31	3.4	0.19	14.8	-97.9	Clear	None
15:45	5	45	100	14.00	1.32	7.17	1.312	3.97	0.17	14.8	-98.6	Clear	None
15:50	5	50	100	14.00	1.45	7.17	1.321	2.83	0.16	14.6	-98.6	Clear	None
15:55	5	55	100	14.00	1.59	7.17	1.328	5.73	0.15	14.7	-99	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM,VOCs SW-846	40 mL Glass	3	HCL

Comments: Well, did not stabilize. Sampled after one hour of purge.

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-157			**Date**	11/12/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	36.0 degrees F and Cloudy. The wind is blowing N at 4.7 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	3.53	**Total Depth (ft-bmp)**	27.62	**Water Column (ft)**	24.09	**Gallons in Well**	3.91
Purge Start	10:50	**Pump Intake (ft-bmp)**	24	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	12:00	**Volumes Purged**	0.61	**Sample ID**	MW-22-157_111224	**Sampled by**	Jarrett Humpula
Sample Time	12:00	**Gallons Purged**	2.4	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
10:57	0	0	150	3.55	0.28	6.87	1.445	16.47	0.32	15.1	-4.2	Clear	None
11:02	5	5	150	3.55	0.48	6.86	1.548	25.08	0.11	15.1	-48.2	Clear	None
11:07	5	10	150	3.55	0.67	6.86	1.588	41.06	0.01	15	-66.8	Clear	None
11:12	5	15	150	3.55	0.87	6.87	1.593	62.9	0	15	-74.6	Clear	None
11:17	5	20	150	3.55	1.07	6.88	1.587	96.4	0	14.9	-79	Clear	None
11:22	5	25	150	3.55	1.27	6.88	1.578	112.99	0	15.3	-82.2	Clear	None
11:27	5	30	150	3.55	1.47	6.89	1.569	105.11	0	15.1	-85.2	Clear	None
11:32	5	35	150	3.55	1.66	6.89	1.568	125.6	0	15.1	-88.3	Clear	None
11:37	5	40	150	3.55	1.86	6.89	1.572	153.5	0	15.2	-91.1	Clear	None
11:42	5	45	150	3.55	2.06	6.89	1.57	152.67	0	15.5	-94.7	Clear	None
11:47	5	50	150	3.55	2.26	6.89	1.567	154.38	0	15.3	-96.3	Clear	None
11:52	5	55	150	3.55	2.38	6.89	1.56	122.27	0	15.4	-98.5	Clear	None
11:57	5	60	150	3.55	2.66	6.99	1.558	142.6	0	15.3	-101.5	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM,VOCs	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2 exterior
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-158			**Date**	11/13/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	48.0 degrees F and Clear. The wind is blowing SE at 15.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	15.31	**Total Depth (ft-bmp)**	21	**Water Column (ft)**	5.69	**Gallons in Well**	0.92
Purge Start	13:30	**Pump Intake (ft-bmp)**	20	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	14:40	**Volumes Purged**	1.87	**Sample ID**	MW-22-158_111324	**Sampled by**	Jackie Schulte
Sample Time	14:35	**Gallons Purged**	1.72	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
13:40	0	0	100	14.95	0.26	6.82	3.565	31.3	2.7	15.5	93	Clear	None
13:45	5	5	100	15.00	0.40	6.95	3.308	20.98	0.57	15.5	-1.9	Clear	None
13:50	5	10	100	15.00	0.53	6.97	3.313	13.96	0.42	15.4	-22.6	Clear	None
13:55	5	15	100	15.00	0.66	6.98	3.361	11.41	0.36	15.5	-31	Clear	None
14:00	5	20	100	15.00	0.79	6.98	3.374	6.75	0.3	15.6	-34.8	Clear	None
14:05	5	25	100	15.00	0.92	6.99	3.386	7	0.26	15.6	-36.7	Clear	None
14:10	5	30	100	15.00	1.06	6.99	3.387	6.33	0.24	15.5	-37.4	Clear	None
14:15	5	35	100	15.00	1.19	6.99	3.388	7.06	0.21	15.6	-38.9	Clear	None
14:20	5	40	100	15.00	1.32	7	3.372	6.22	0.2	15.6	-39.9	Clear	None
14:25	5	45	100	15.00	1.45	7	3.372	5.66	0.19	15.5	-40.7	Clear	None
14:30	5	50	100	15.00	1.59	7	3.362	5.34	0.18	15.6	-41.9	Clear	None
14:35	5	55	100	15.00	1.72	7.01	3.367	5.72	0.19	15.5	-42	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-22-160			**Date**	11/13/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	51.1 degrees F and Clear. The wind is blowing E/SE at 13.9 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	14.55	**Total Depth (ft-bmp)**	19	**Water Column (ft)**	4.45	**Gallons in Well**	0.72
Purge Start	15:00	**Pump Intake (ft-bmp)**	17	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	16:05	**Volumes Purged**	2.21	**Sample ID**	MW-22-160_111324	**Sampled by**	Jackie Schulte
Sample Time	16:00	**Gallons Purged**	1.59	**Replicate/ Code No.**	MW-22-160_111324	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
15:05	0	0	100	14.55	0.13	6.94	1.171	37.57	1.04	15.2	-31.9	Clear	None
15:10	5	5	100	14.55	0.26	6.89	1.131	26.66	0.42	15.3	-35.7	Clear	None
15:15	5	10	100	14.55	0.40	6.88	1.124	16.04	0.28	15.2	-36.6	Clear	None
15:20	5	15	100	14.55	0.53	6.87	1.118	15.33	0.23	15.1	-37.6	Clear	None
15:25	5	20	100	14.55	0.66	6.87	1.115	10.54	0.21	15.1	-38.3	Clear	None
15:30	5	25	100	14.55	0.79	6.87	1.114	8.02	0.18	15.1	-39.5	Clear	None
15:35	5	30	100	14.55	0.92	6.87	1.113	6.59	0.17	15.1	-40.5	Clear	None
15:40	5	35	100	14.55	1.06	6.87	1.113	5.75	0.16	15	-41.4	Clear	None
15:45	5	40	100	14.55	1.19	6.87	1.112	5.6	0.15	15	-41.9	Clear	None
15:50	5	45	100	14.55	1.32	6.87	1.112	5.99	0.14	15	-42.9	Clear	None
15:55	5	50	100	14.55	1.45	6.87	1.113	4.12	0.13	15.1	-43.9	Clear	None
16:00	5	55	100	14.55	1.59	6.87	1.112	3.94	0.13	15.1	-44.5	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	6	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6
Well Locked at Arrival: yes
Condition of Well: Good condition
Well Locked at Departure: yes
Well Completion: Flush mount
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-23-161			**Date**	11/12/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	42.1 degrees F and Partly Cloudy. The wind is blowing E/NE at 10.3 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	11.68	**Total Depth (ft-bmp)**	27.55	**Water Column (ft)**	15.87	**Gallons in Well**	2.58
Purge Start	12:35	**Pump Intake (ft-bmp)**	24	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	13:40	**Volumes Purged**	0.93	**Sample ID**	MW-23-161_111224	**Sampled by**	Jarrett Humpula
Sample Time	13:40	**Gallons Purged**	2.4	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
12:35	0	0	150	11.80	0.00	7.1	1.804	85.25	5.52	13.7	-52.4	Clear	None
12:40	5	5	150	11.80	0.20	6.92	2.336	32.78	0.5	13.6	-89.9	Clear	None
12:45	5	10	150	11.80	0.40	6.91	2.212	6.22	0.15	13.8	-92.6	Clear	None
12:50	5	15	150	11.80	0.59	6.98	1.855	2.56	0.03	13.3	-101.2	Clear	None
12:55	5	20	150	11.80	0.79	7.04	1.551	2.79	0	13.4	-111.2	Clear	None
13:00	5	25	150	11.80	0.99	7.08	1.507	3.34	0	13.3	-115.2	Clear	None
13:05	5	30	150	11.80	1.19	7.06	1.489	5.4	0	12.8	-117.5	Clear	None
13:10	5	35	150	11.80	1.39	7.05	1.484	9.66	0	13.3	-119.5	Clear	None
13:15	5	40	150	11.80	1.59	7.05	1.487	14.93	0	13.4	-120.9	Clear	None
13:20	5	45	150	11.80	1.78	7.05	1.493	19.52	0	13.1	-121.9	Clear	None
13:25	5	50	150	11.80	1.98	7.05	1.497	24.05	0	13.4	-122.9	Clear	None
13:30	5	55	150	11.80	2.18	7.05	1.493	28.77	0	13.2	-123.7	Clear	None
13:35	5	60	150	11.80	2.38	7.04	1.499	35.17	0	13.3	-124.5	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2 exterior
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-23-162			**Date**	11/12/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	42.1 degrees F and Partly Cloudy. The wind is blowing E/NE at 10.3 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	15.30	**Total Depth (ft-bmp)**	36.61	**Water Column (ft)**	21.31	**Gallons in Well**	3.46
Purge Start	14:00	**Pump Intake (ft-bmp)**	24	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	15:10	**Volumes Purged**	0.69	**Sample ID**	MW-23-162_111224	**Sampled by**	Jarrett Humpula
Sample Time	15:05	**Gallons Purged**	2.4	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
14:05	0	0	150	15.30	0.20	6.76	3.166	83.27	0.09	13.3	-80.4	Clear	None
14:10	5	5	150	15.30	0.40	6.76	3.161	90.02	0.07	13.3	-81	Clear	None
14:15	5	10	150	15.30	0.59	6.77	3.152	105.76	0.01	13.2	-83.3	Clear	None
14:20	5	15	150	15.30	0.79	6.77	3.15	122.32	0	13.3	-86.1	Clear	None
14:25	5	20	150	15.30	0.99	6.78	3.155	138.76	0	13.1	-87.5	Clear	None
14:30	5	25	150	15.30	1.19	6.78	3.145	141.55	0	13.2	-88.5	Clear	None
14:35	5	30	150	15.30	1.39	6.78	3.139	158.05	0	13	-89.1	Clear	None
14:40	5	35	150	15.30	1.59	6.78	3.147	165.13	0	13	-89.6	Clear	None
14:45	5	40	150	15.30	1.78	6.78	3.145	167.3	0	13	-89.9	Clear	None
14:50	5	45	150	15.30	1.98	6.79	3.149	132.58	0	13	-90.4	Clear	None
14:55	5	50	150	15.30	2.18	6.79	3.145	148.63	0	12.9	-90.7	Clear	None
15:00	5	55	150	15.30	2.38	6.79	3.156	7.42	0	12.8	-91.1	Clear	None
15:05	5	60	150	15.30	2.58	6.83	3.149	11.63	0	12.8	-91.4	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2 exterior
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	MW-23-163			**Date**	11/12/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	46.9 degrees F and Mostly Clear. The wind is blowing E at 5.8 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	14.70	**Total Depth (ft-bmp)**	27.22	**Water Column (ft)**	12.52	**Gallons in Well**	2.03
Purge Start	15:37	**Pump Intake (ft-bmp)**	24	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	15:10	**Volumes Purged**	1.18	**Sample ID**	MW-23-163_111224	**Sampled by**	Jarrett Humpula
Sample Time	16:40	**Gallons Purged**	2.4	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
15:40	0	0	150	14.70	0.12	7.32	1.275	101.73	4.5	13.8	-71.9	Clear	None
15:45	5	5	150	14.70	0.32	7.17	1.184	51.88	0.42	13.5	-81.8	Clear	None
15:50	5	10	150	14.70	0.52	7.14	1.178	43.08	0.23	13.4	-83.7	Clear	None
15:55	5	15	150	14.70	0.71	8.14	1.176	31.13	0.11	13.4	-85.4	Clear	None
16:00	5	20	150	14.70	0.91	7.12	1.19	22.9	0.01	13.5	-87.4	Clear	None
16:05	5	25	150	14.70	1.11	7.11	1.199	18.44	0	13.4	-88.8	Clear	None
16:10	5	30	150	14.70	1.31	7.11	1.208	13.1	0	13.1	-90	Clear	None
16:15	5	35	150	14.70	1.51	7.1	1.213	12.67	0	13.1	-90.6	Clear	None
16:20	5	40	150	14.70	1.70	7.1	1.217	12.19	0	12.9	-91.3	Clear	None
16:25	5	45	150	14.70	1.90	7.1	1.223	11.9	0	12.6	-91.5	Clear	None
16:30	5	50	150	14.70	2.10	7.1	1.224	15.42	0	12.5	-91.6	Clear	None
16:35	5	55	150	14.70	2.30	7.1	1.225	11.38	0	12.2	-91.8	Clear	None
16:40	5	60	150	14.70	2.50	7.1	1.225	11.88	0	12.1	-91.8	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2 exterior
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	PW-14-01			**Date**	11/13/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	69.93	**Total Depth (ft-bmp)**	76.8	**Water Column (ft)**	6.87	**Gallons in Well**	1.12
Purge Start	11:55	**Pump Intake (ft-bmp)**	74.3	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	12:30	**Volumes Purged**	1.18	**Sample ID**	PW-14-01_111324	**Sampled by**	Donald Richmond
Sample Time	12:25	**Gallons Purged**	1.32	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
12:10	0	0	200	69.93	0.79	7.15	2.656	10	9.67	13.2	108.9	Cloudy	None
12:15	5	5	200	69.93	1.06	7.13	2.663	7.7	9.71	13.2	112.8	Cloudy	None
12:20	5	10	200	69.93	1.32	7.14	2.683	8.33	9.58	13.4	113.5	Cloudy	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	PW-14-02			**Date**	11/13/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	67.42	**Total Depth (ft-bmp)**	80	**Water Column (ft)**	12.58	**Gallons in Well**	2.04
Purge Start	10:55	**Pump Intake (ft-bmp)**	77.5	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	11:25	**Volumes Purged**	0.52	**Sample ID**	PW-14-02_111324	**Sampled by**	Donald Richmond
Sample Time	11:20	**Gallons Purged**	1.06	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
11:05	0	0	200	67.42	0.53	7.63	1.489	5.6	11.27	11.2	111.7	Cloudy	None
11:10	5	5	200	67.42	0.79	7.6	1.487	2.97	11.29	11	113.3	Cloudy	None
11:15	5	10	200	67.42	1.06	7.6	1.48	3.06	11.29	11	113.7	Cloudy	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	PW-14-03R			**Date**	11/19/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	51.1 degrees F and Mostly Cloudy. The wind is blowing SE at 18.3 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	6	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	78.17	**Total Depth (ft-bmp)**	95.5	**Water Column (ft)**	17.33	**Gallons in Well**	25.34
Purge Start	08:30	**Pump Intake (ft-bmp)**	93	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	09:30	**Volumes Purged**	0.06	**Sample ID**	PW-14-03R_111924	**Sampled by**	Billy Cobern
Sample Time	09:30	**Gallons Purged**	1.59	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
08:35	0	0	100	78.50	0.13	3.15	3.953	46.58	8.23	13.9	525.3	Clear	None
08:40	5	5	100	78.50	0.26	2.95	3.972	27.05	7.15	13.7	537.3	Clear	None
08:45	5	10	100	78.50	0.40	2.88	4.015	23.32	6.03	13.8	538.6	Clear	None
08:50	5	15	100	78.50	0.53	2.81	4.098	18.74	4.19	13.7	541	Clear	None
08:55	5	20	100	78.50	0.66	2.77	4.144	26.24	2.64	13.1	540	Clear	None
09:00	5	25	100	78.50	0.79	2.77	4.133	38.16	2.36	13	542.3	Clear	None
09:05	5	30	100	78.50	0.92	2.75	4.137	56.67	2.26	12.8	543.3	Clear	None
09:10	5	35	100	78.50	1.06	2.75	4.128	73.31	2.18	13	544.1	Clear	None
09:15	5	40	100	78.50	1.19	2.74	4.132	83.74	2.13	12.9	545.1	Clear	None
09:20	5	45	100	78.50	1.32	2.74	4.128	100.75	2.1	12.9	546	Clear	None
09:25	5	50	100	78.50	1.45	2.73	4.139	111.51	2.08	13	547	Clear	None
09:30	5	55	100	78.50	1.59	2.73	4.141	113.98	2.08	13	547.1	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments: Turbidity didn't stabilize within 60 minutes

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Well Locked at Arrival: yes
Condition of Well: Good condition
Well Locked at Departure: yes
Well Completion: Stick-up
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	TW-14-02			**Date**	11/13/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	63.50	**Total Depth (ft-bmp)**	72	**Water Column (ft)**	8.50	**Gallons in Well**	1.38
Purge Start	09:20	**Pump Intake (ft-bmp)**	69.5	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	10:25	**Volumes Purged**	2.11	**Sample ID**	TW-14-02_111324	**Sampled by**	Donald Richmond
Sample Time	10:20	**Gallons Purged**	2.91	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
09:40	0	0	200	63.50	1.06	6.89	3.218	311	9.34	11.8	132.1	Cloudy	None
09:45	5	5	200	63.50	1.32	6.86	3.249	176	8.96	11.5	133.1	Cloudy	None
09:50	5	10	200	63.50	1.59	6.85	3.306	155	8.65	11.8	133.4	Cloudy	None
09:55	5	15	200	63.50	1.85	6.84	3.312	89	8.45	12	133.2	Cloudy	None
10:00	5	20	200	63.50	2.11	6.82	3.364	155	8.23	12	133.6	Cloudy	None
10:05	5	25	200	63.50	2.38	6.81	3.399	87.52	7.94	12.2	133.7	Cloudy	None
10:10	5	30	200	63.50	2.64	6.81	3.403	174	7.81	12.1	133.9	Cloudy	None
10:15	5	35	200	63.50	2.91	6.82	3.409	67	7.63	12	134.2	Cloudy	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	TW-15-11			**Date**	11/18/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**	55.0 degrees F and Clear. The wind is blowing E at 3.4 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	67.79	**Total Depth (ft-bmp)**	87.05	**Water Column (ft)**	19.26	**Gallons in Well**	3.13
Purge Start	13:25	**Pump Intake (ft-bmp)**	84.5	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	14:25	**Volumes Purged**	0.51	**Sample ID**	TW-15-11_111824	**Sampled by**	Billy Cobern
Sample Time	14:25	**Gallons Purged**	1.59	**Replicate/ Code No.**	TW-15-11_111824	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
13:30	0	0	100	68.10	0.13	7.02	3.351	152.78	8.14	16.1	0.8	Clear	None
13:35	5	5	100	68.10	0.26	6.9	3.398	99.59	6.59	15.9	12.1	Clear	None
13:40	5	10	100	68.10	0.40	6.82	3.421	89.89	5.61	15.7	18.2	Clear	None
13:45	5	15	100	68.10	0.53	6.79	3.441	69.51	4.92	15.6	22.5	Clear	None
13:50	5	20	100	68.10	0.66	6.78	3.453	61.46	4.27	15.6	26	Clear	None
13:55	5	25	100	68.10	0.79	6.77	3.462	66.01	3.82	15.4	28.7	Clear	None
14:00	5	30	100	68.10	0.92	6.76	3.475	52.33	3.25	15.5	31.7	Clear	None
14:05	5	35	100	68.10	1.06	6.74	3.475	61.08	2.91	15.4	33.8	Clear	None
14:10	5	40	100	68.10	1.19	6.73	3.478	51.07	2.6	15.4	35.7	Clear	None
14:15	5	45	100	68.10	1.32	6.72	3.478	61.71	2.26	15.3	37.3	Clear	None
14:20	5	50	100	68.10	1.45	6.72	3.48	62.96	2.17	15.3	38.7	Clear	None
14:25	5	55	100	68.10	1.59	6.72	3.481	62.11	2.12	15.3	39.9	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	9	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	TW-15-12			**Date**	11/14/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	4	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	65.44	**Total Depth (ft-bmp)**	78	**Water Column (ft)**	12.56	**Gallons in Well**	8.16
Purge Start	08:50	**Pump Intake (ft-bmp)**	75.5	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Purge End	09:35	**Volumes Purged**	0.19	**Sample ID**	TW-15-12_111424	**Sampled by**	Donald Richmond
Sample Time	09:25	**Gallons Purged**	1.59	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
09:10	0	0	200	65.44	1.06	7.28	2.076	43	10.49	12.6	134.2	Clear	None
09:15	5	5	200	65.44	1.32	7.28	2.084	39	10.5	12.6	137.1	Clear	None
09:20	5	10	200	65.44	1.59	7.27	2.092	40	10.47	12.6	139.5	Clear	None

Constituent Sampled	Container	Number	Preservative
TKN, T. Phosphorus	250 mL Plastic	1	H2SO4
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL
Nitrate/Nitrite	250 mL Plastic	1	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: no
Well Locked at Departure: no
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30214036	**Well ID**	UNK-15			**Date**	11/19/2024
Project Name/Location	RACER Lansing 2024		**Weather(°F)**				
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	4	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	0.67	**Total Depth (ft-bmp)**	16	**Water Column (ft)**	15.33	**Gallons in Well**	9.96
Purge Start	10:05	**Pump Intake (ft-bmp)**	13.5	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	10:35	**Volumes Purged**	0.29	**Sample ID**	UNK-15_111924	**Sampled by**	Donald Richmond
Sample Time	10:30	**Gallons Purged**	2.91	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
10:15	0	0	200	0.67	0.53	7.83	0.509	2.93	2.34	14.4	95.4	Clear	None
10:20	5	5	200	0.67	0.79	7.82	0.51	3.23	2.2	14.4	97.2	Clear	None
10:25	5	10	200	0.67	1.06	7.82	0.51	2.88	2.16	14.5	97.6	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot — 1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Appendix C-2

Soil Vapor Sampling Logs

Soil Vapor Collection Log Sheet

Office Name & Address (Reporting Information): Lansing 300 S. Washington Square, Suite 315, Lansing, MI 49426			Project Name: RACER Lansing 2024
Field Manager: Tiffany Linder			Project Number: 30214036
Phone: 810-225-1928	Special Instructions: TO-15		Site Address: Lansing MI
Email Address for Result Reporting: Tiffany.Linder@arcadis.com			Sampler Name: Austin Westhuis / Phone Number: 517-719-0214
			Email: Tiffany.Linder@arcadis.com
Helium Detector Used: Fibertec Environmental Services quantitative helium shroud kit	Helium Leak Method: Helium Tracer Test		Summa Canister Size (1L, 2.7 L, 6L): 1 L / Lab: Fibertec Environmental Services

Sample ID	Sample Location Description	Date	Leak/Tracer Test completed prior to sample collection						Canister Number	Flow Controller Number	Sample Collection Start Time	Beginning Canister Pressure (in. Hg)	Sample Collection End Time	Ending Canister Pressure (in. Hg)	Notes
			Shut in Test Pass/Fail?	Purge Reading (ppm)	Shroud Helium Concentration	Helium Test Pass/Fail?	Purge Volume (mL)	Purge Rate (mL/min)							
DUP-01_082024	Plant 6 entrance near off-site park	08/20/2024	N/A	0	46.6	Pass	81.48	100	4869	3854	11:07	-28	11:13	-5	DUP-01_082024 collected at SVMP-20-01.
SVMP-20-01_082024	Plant 6 entrance near off-site park	08/20/2024	N/A	0	43.7	Pass	81.48	100	3841	4930	10:56	-27	11:02	-5	DUP-01_082024 collected here.

Meteorological Data

Date	Time	Temp		Relative Humidity (%)	Barometric Pressure (in.Hg)	Weather source
		Indoor	Outdoor			
08/20/2024	10:35		56	84	30	55.9 degrees F and Mostly Clear. The wind is blowing undefined at 8.1 mph.

General Notes or Observations

None

Air Parameters (completed after sample collection)

Location ID	CH4 %	CH4 LEL %	O2 %	PID (ppm)	Differential Pressure (in. Water Column)
DUP-01_082024	0	0	14.1	0	NM
SVMP-20-01_082024	0	0	14.1	0	NM

Soil Vapor Collection Log Sheet

Office Name & Address (Reporting Information): Lansing 300 S. Washington Square, Suite 315, Lansing, MI 49426			Project Name: RACER Lansing 2024
Field Manager: Tiffany Linder			Project Number: 30214036
Phone: 810-225-1928	Special Instructions: TO-15		Site Address: Lansing MI
Email Address for Result Reporting: Tiffany.Linder@arcadis.com			Sampler Name: Austin Westhuis / Phone Number: 517-719-0214
			Email: Tiffany.Linder@arcadis.com
Helium Detector Used: Fibertec Environmental Services quantitative helium shroud kit	Helium Leak Method: Helium Tracer Test		Summa Canister Size (1L, 2.7 L, 6L): 1 L / Lab: Fibertec Environmental Services

Sample ID	Sample Location Description	Date	Leak/Tracer Test completed prior to sample collection						Canister Number	Flow Controller Number	Sample Collection Start Time	Beginning Canister Pressure (in. Hg)	Sample Collection End Time	Ending Canister Pressure (in. Hg)	Notes
			Shut in Test Pass/Fail?	Purge Reading (ppm)	Shroud Helium Concentration	Helium Test Pass/Fail?	Purge Volume (mL)	Purge Rate (mL/min)							
SVMP-20-01_112024	Plant 6 entrance near off-site park	11/20/2024	Pass	0	42.7	Pass	81.48	100	1092	4948	11:00	-26	11:10	-5	Bottle Vac #1092 (SVMP-20-01) and Bottle Vac #4097 (DUP-01). Flow controller #4948 used with splitter #3818 for simultaneous sample collection.

Meteorological Data

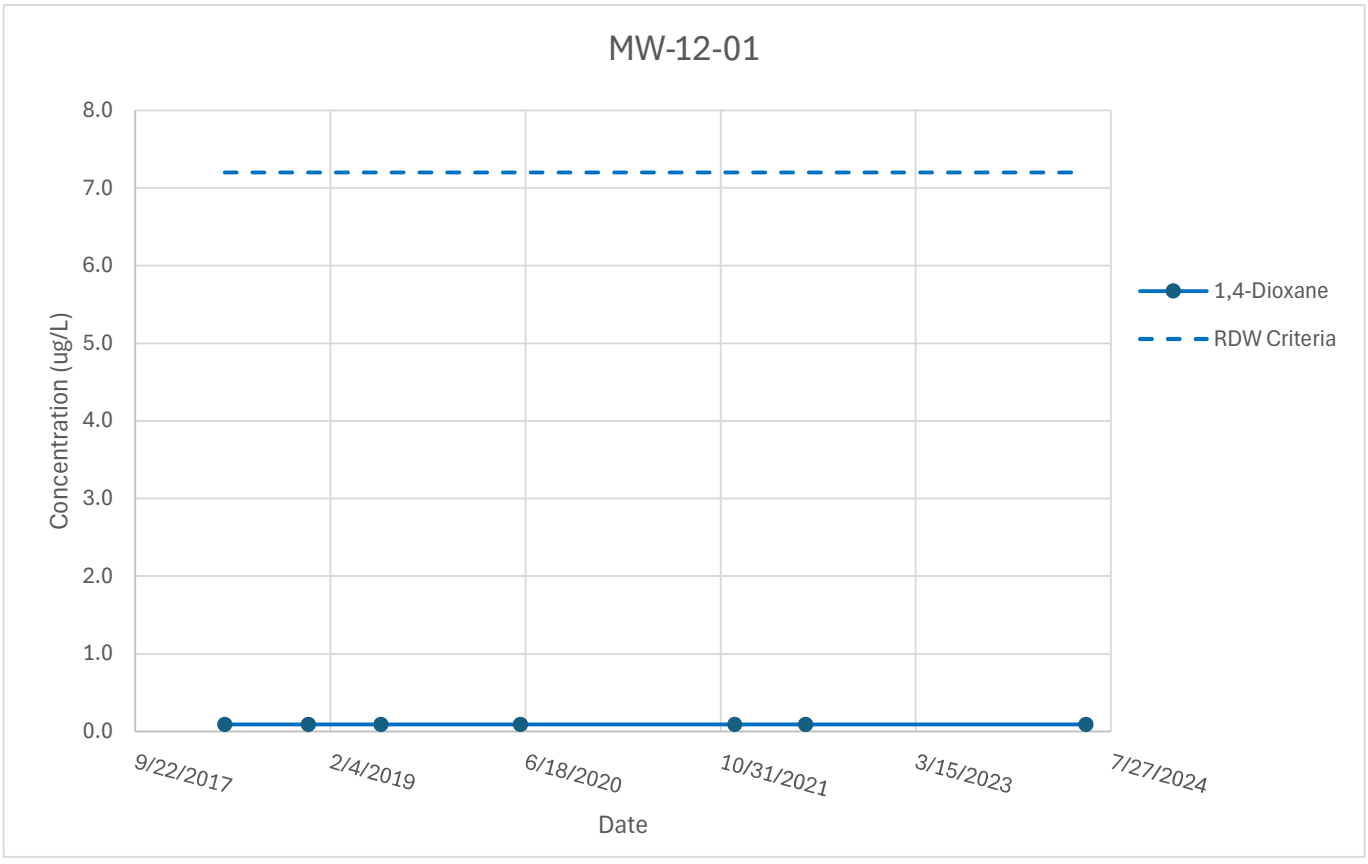
Date	Time	Temp		Relative Humidity (%)	Barometric Pressure (in.Hg)	Weather source	**General Notes or Observations**
		Indoor	Outdoor				
11/20/2024	09:53		47	83	30	46.9 degrees F and Cloudy. The wind is blowing undefined at 6.9 mph.	None

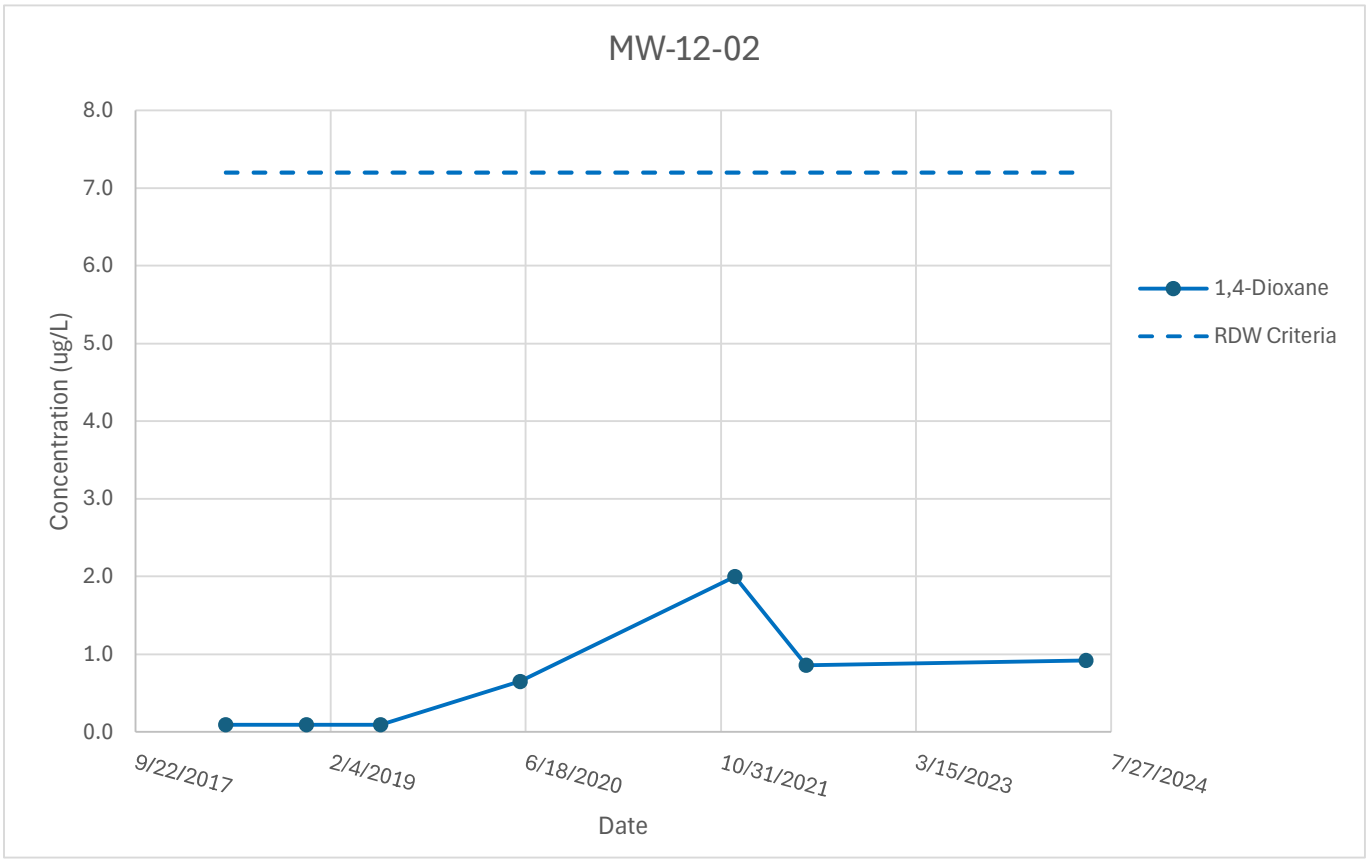
Air Parameters (completed after sample collection)

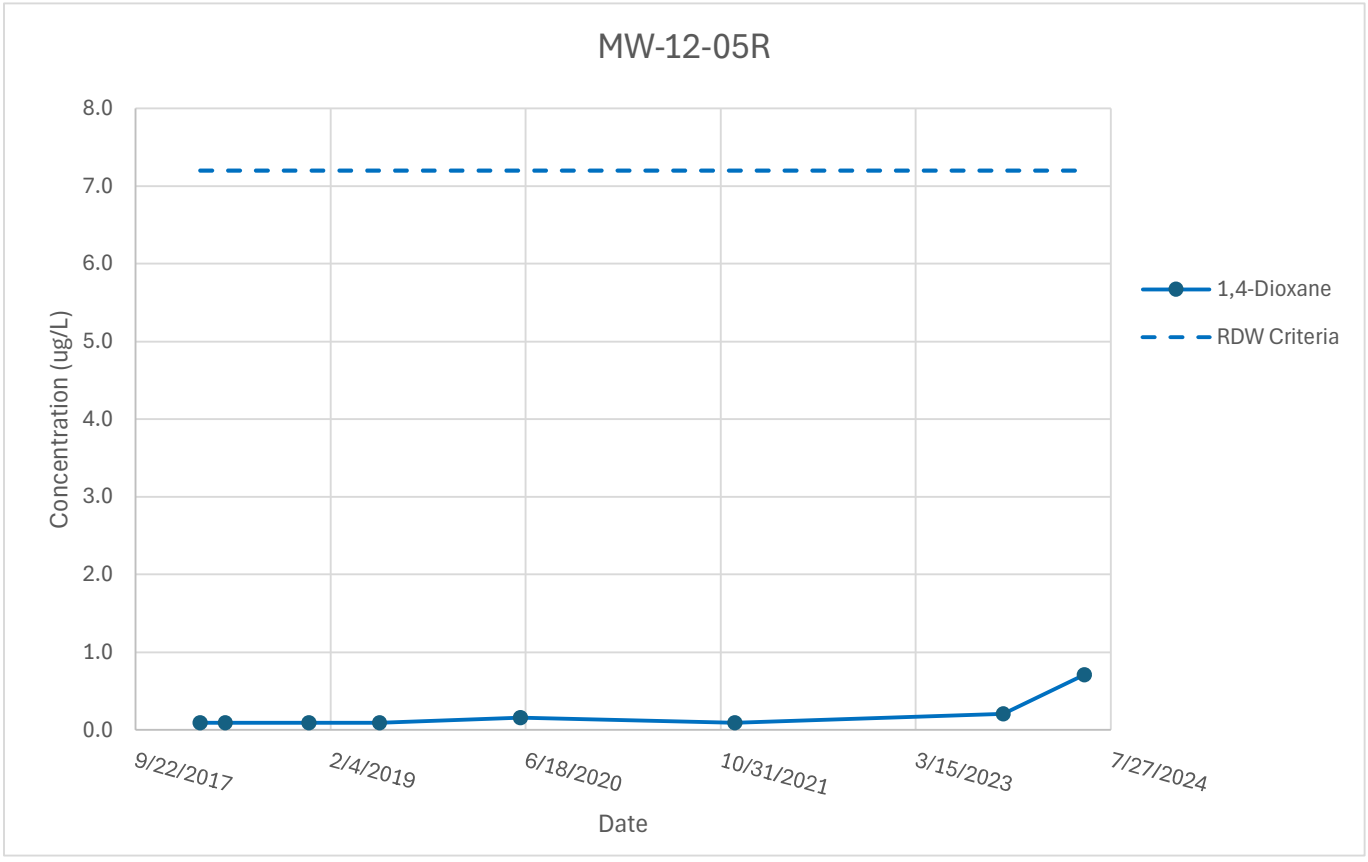
Location ID	CH4 %	CH4 LEL %	O2 %	PID (ppm)	Differential Pressure (in. Water Column)
SVMP-20-01_112024	0	0	16.2	0	NM

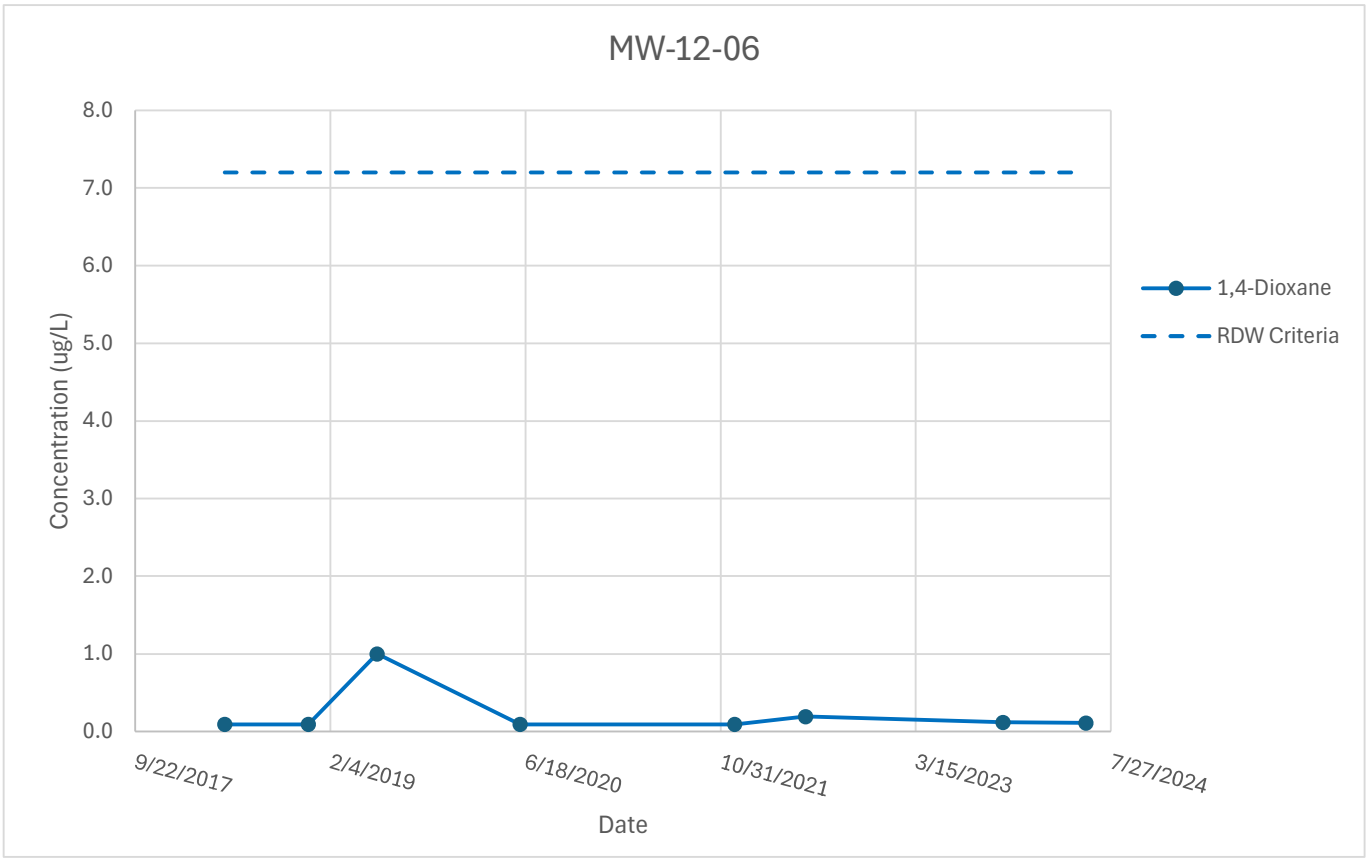
Appendix D

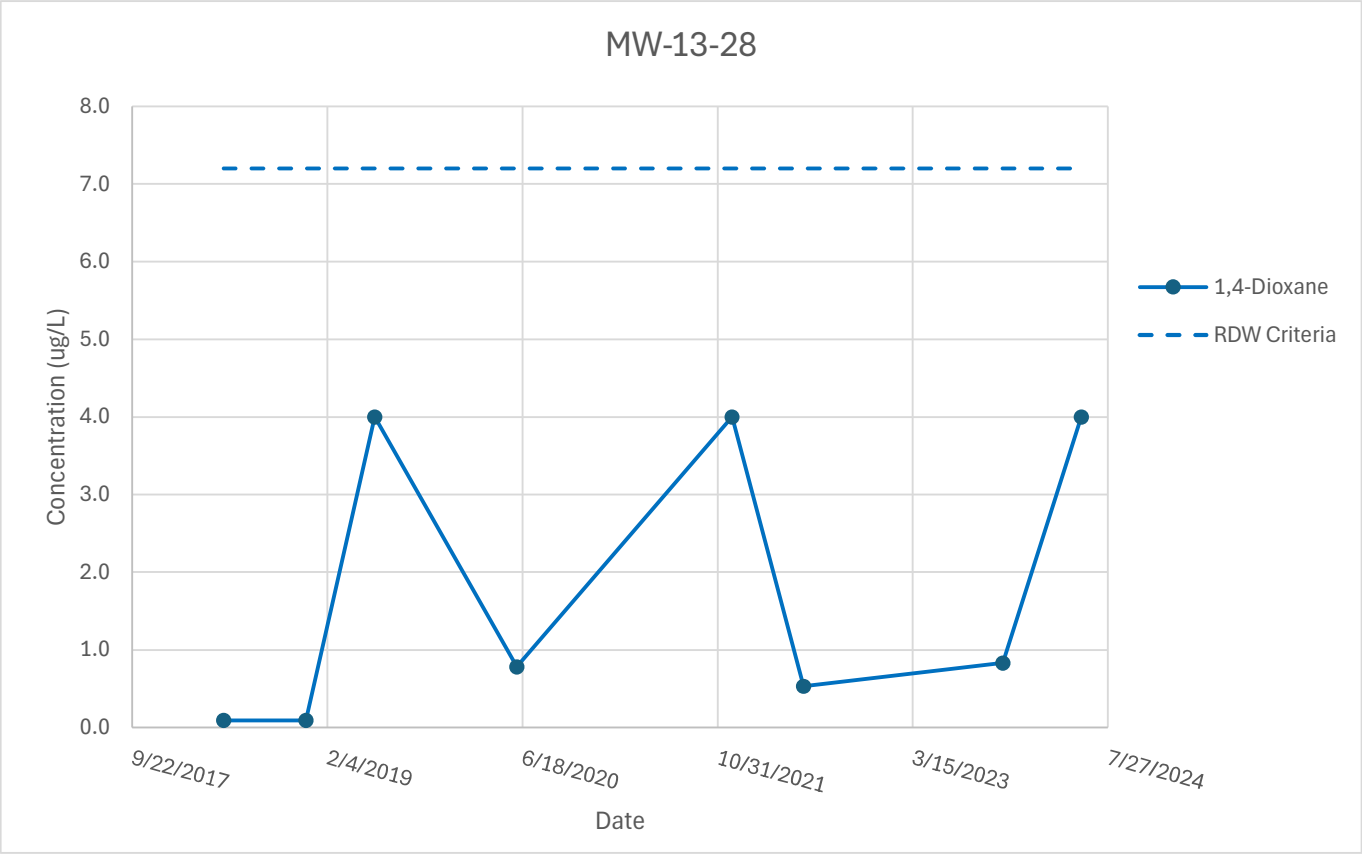
1,4-Dioxane Bedrock Trend Graphs

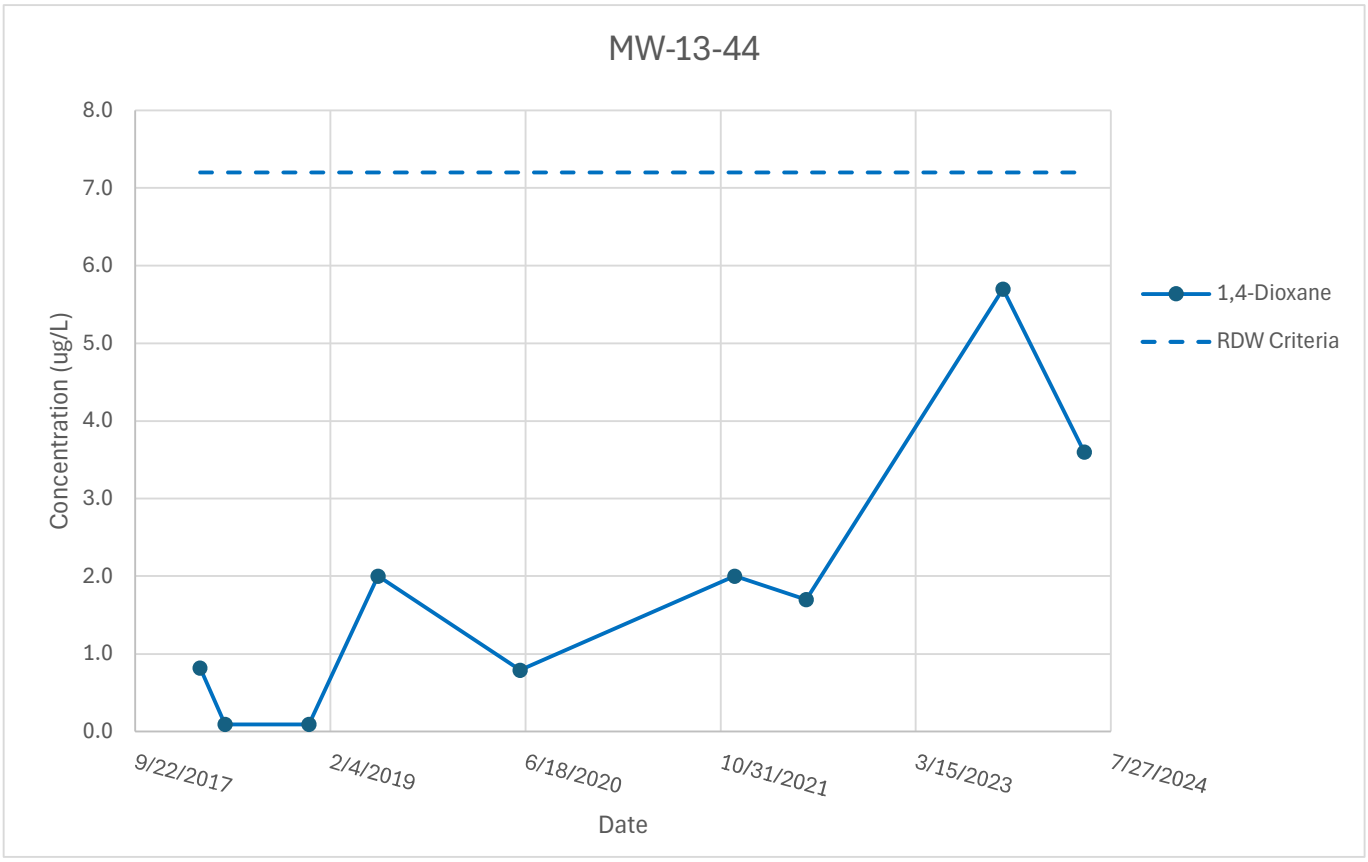

MW-12-01
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
Concentration (ug/L)
9/22/2017
2/4/2019
6/18/2020
10/31/2021
3/15/2023
7/27/2024
Date
1,4-Dioxane
RDW Criteria

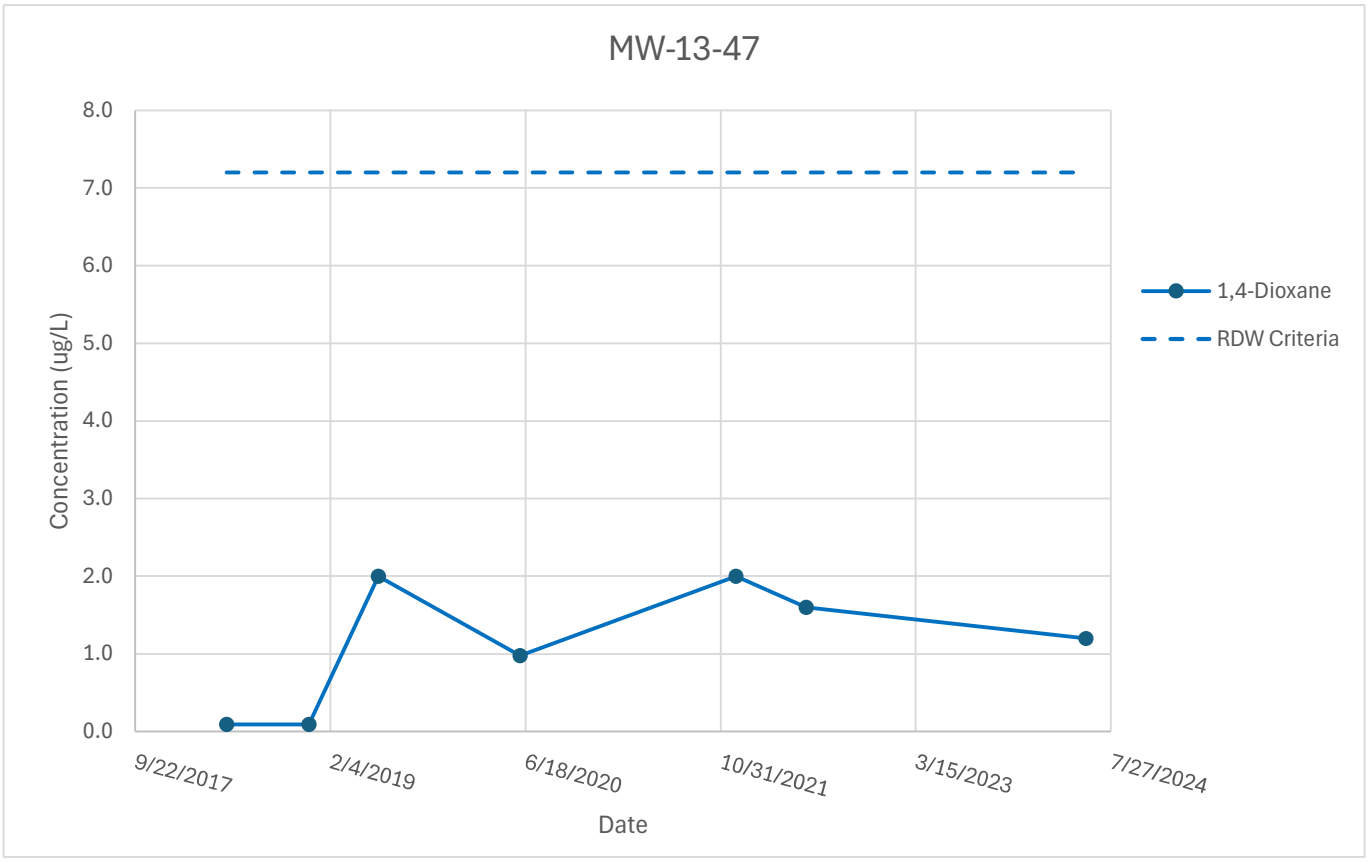

MW-12-02
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7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
Concentration (ug/L)
9/22/2017
2/4/2019
6/18/2020
10/31/2021
3/15/2023
7/27/2024
Date
1,4-Dioxane
RDW Criteria

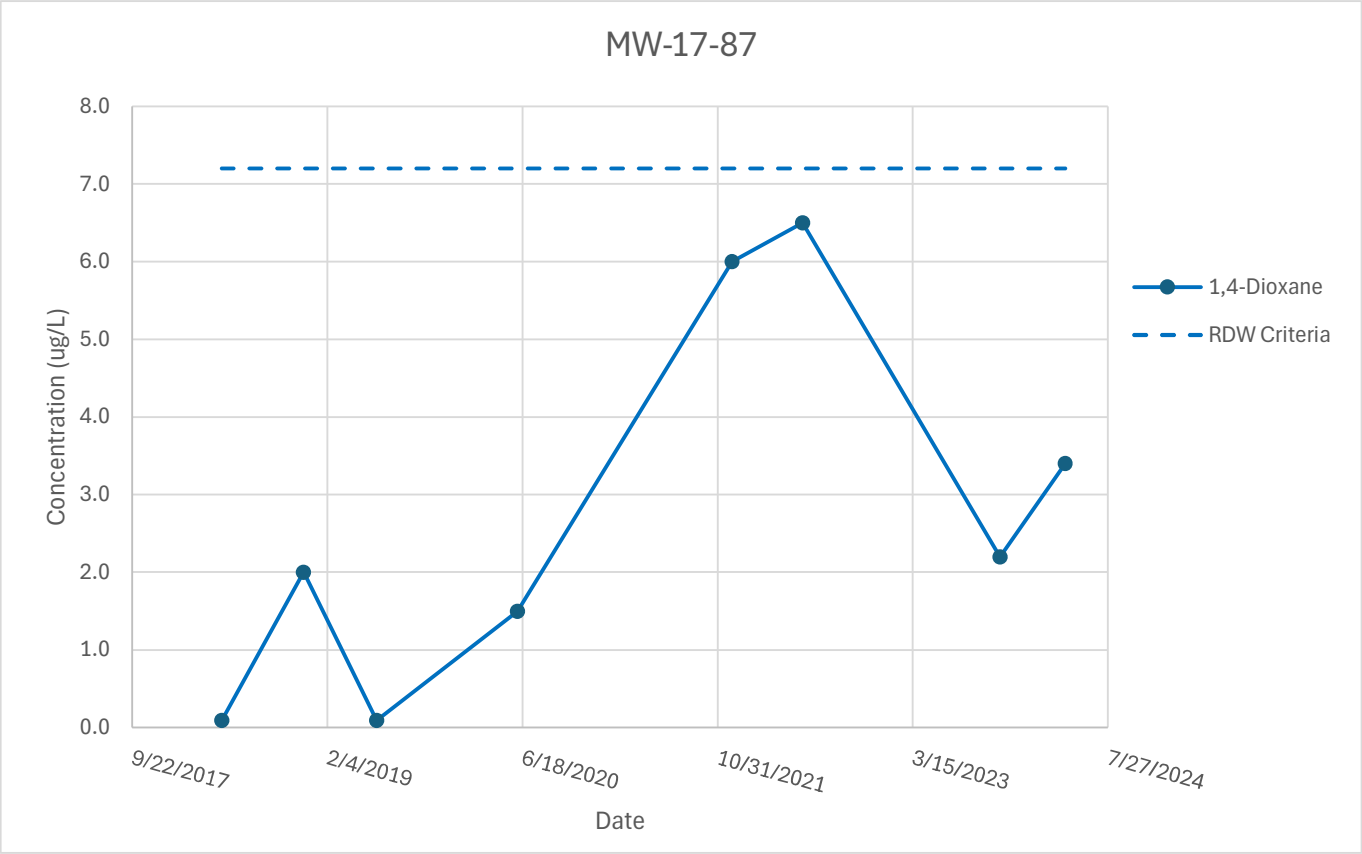

MW-12-05R
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7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
Concentration (ug/L)
9/22/2017
2/4/2019
6/18/2020
10/31/2021
3/15/2023
7/27/2024
Date
1,4-Dioxane
RDW Criteria

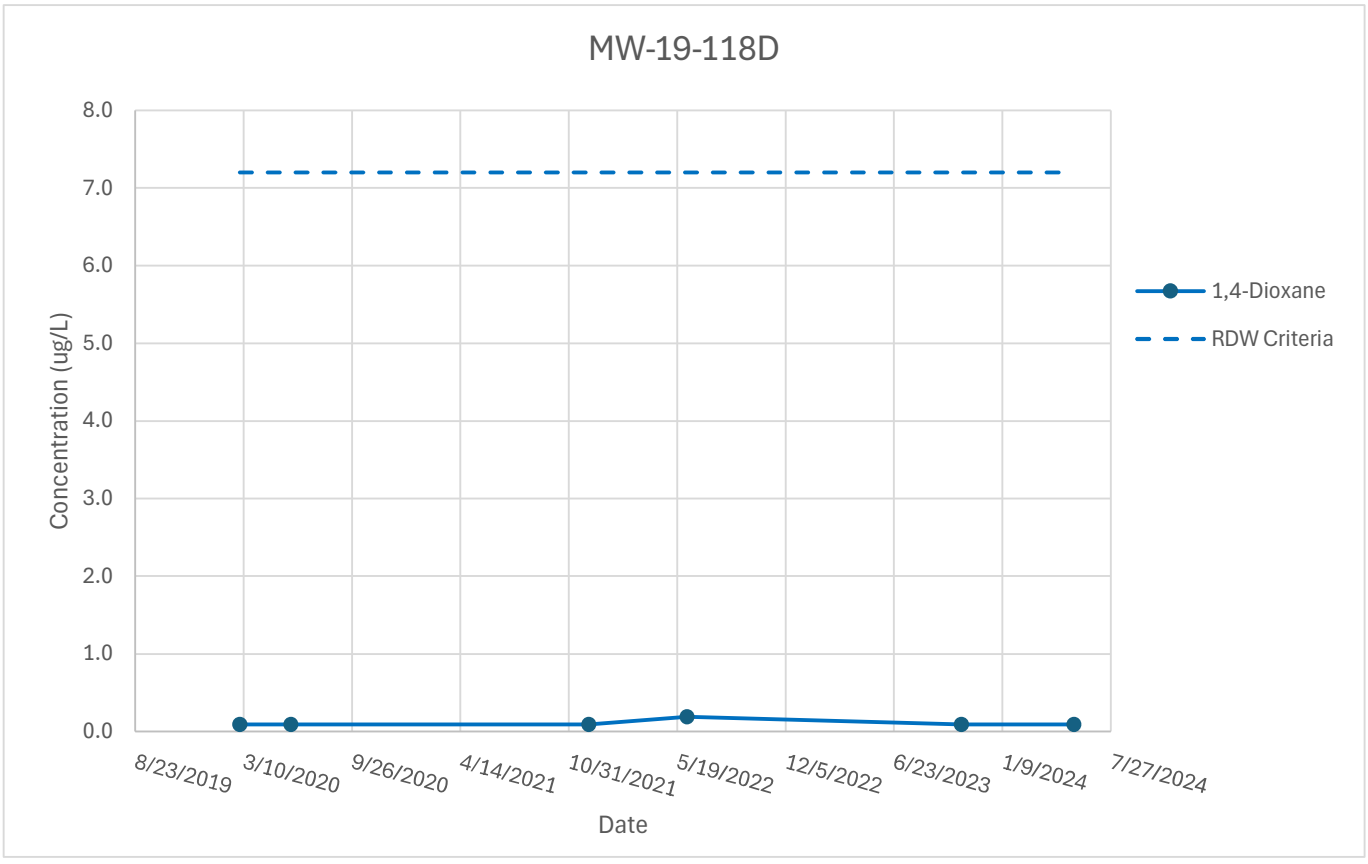

MW-12-06
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7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
Concentration (ug/L)
9/22/2017
2/4/2019
6/18/2020
10/31/2021
3/15/2023
7/27/2024
Date
1,4-Dioxane
RDW Criteria

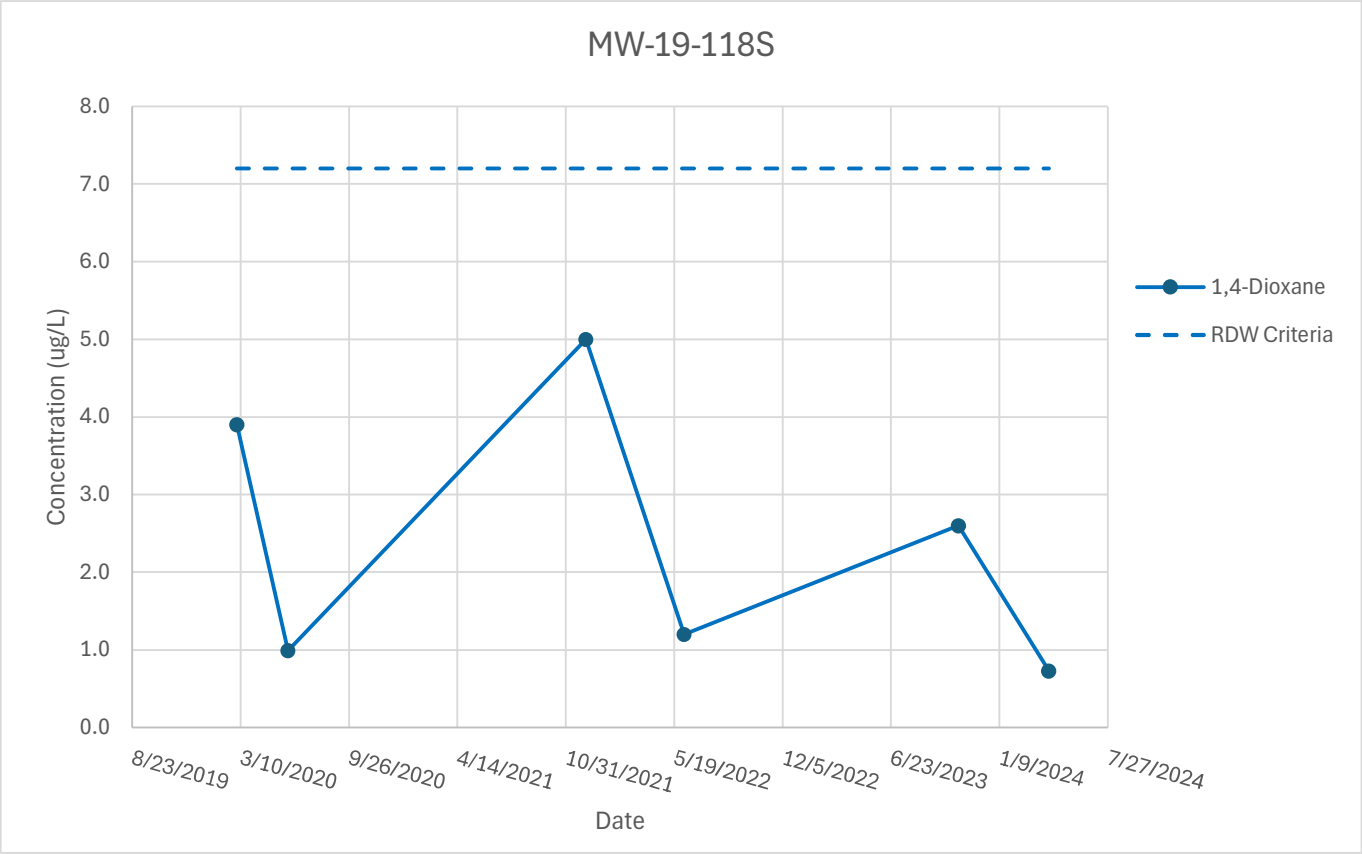

MW-13-28
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7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
Concentration (ug/L)
9/22/2017
2/4/2019
6/18/2020
10/31/2021
3/15/2023
7/27/2024
Date
1,4-Dioxane
RDW Criteria

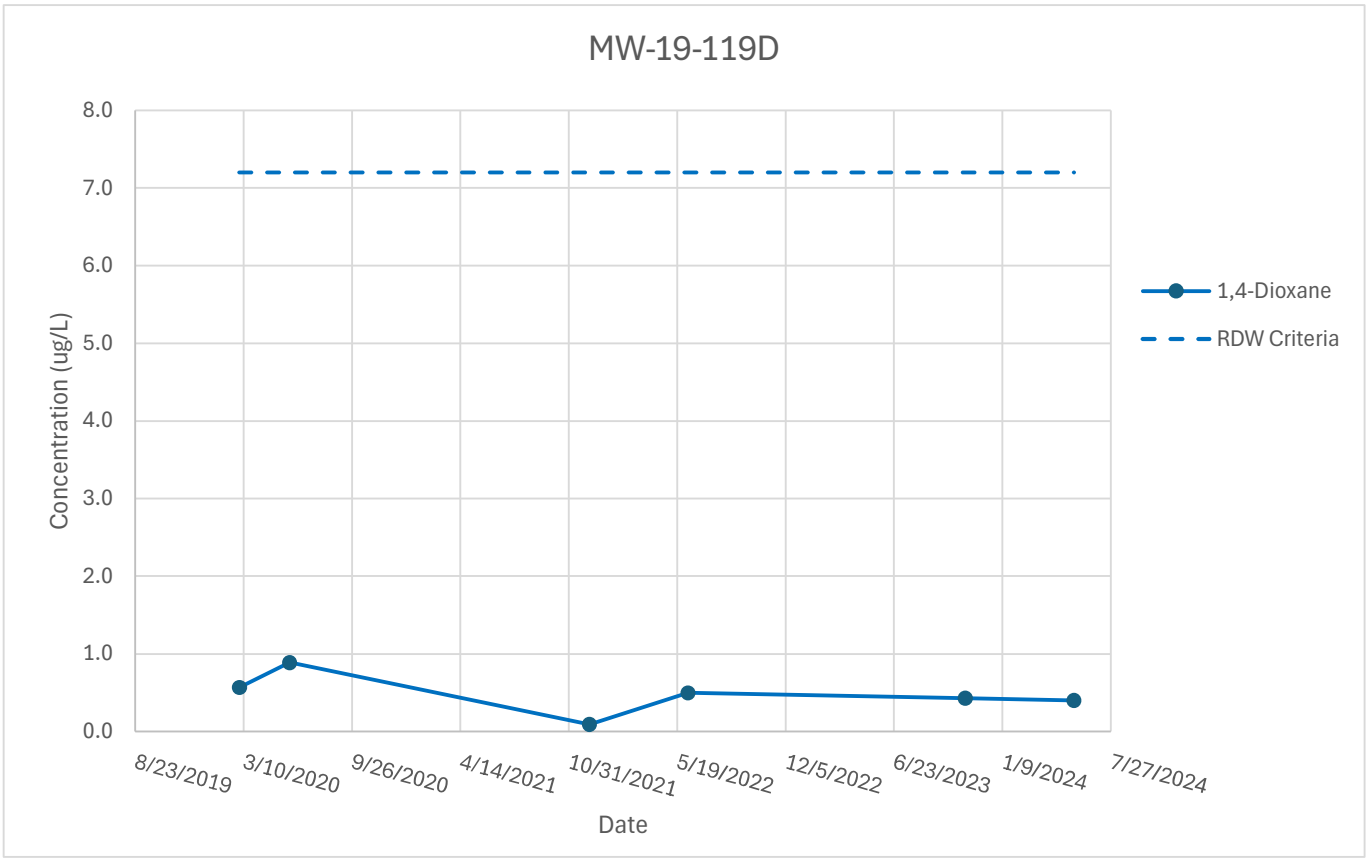

MW-13-44
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7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
Concentration (ug/L)
9/22/2017
2/4/2019
6/18/2020
10/31/2021
3/15/2023
7/27/2024
Date
1,4-Dioxane
RDW Criteria

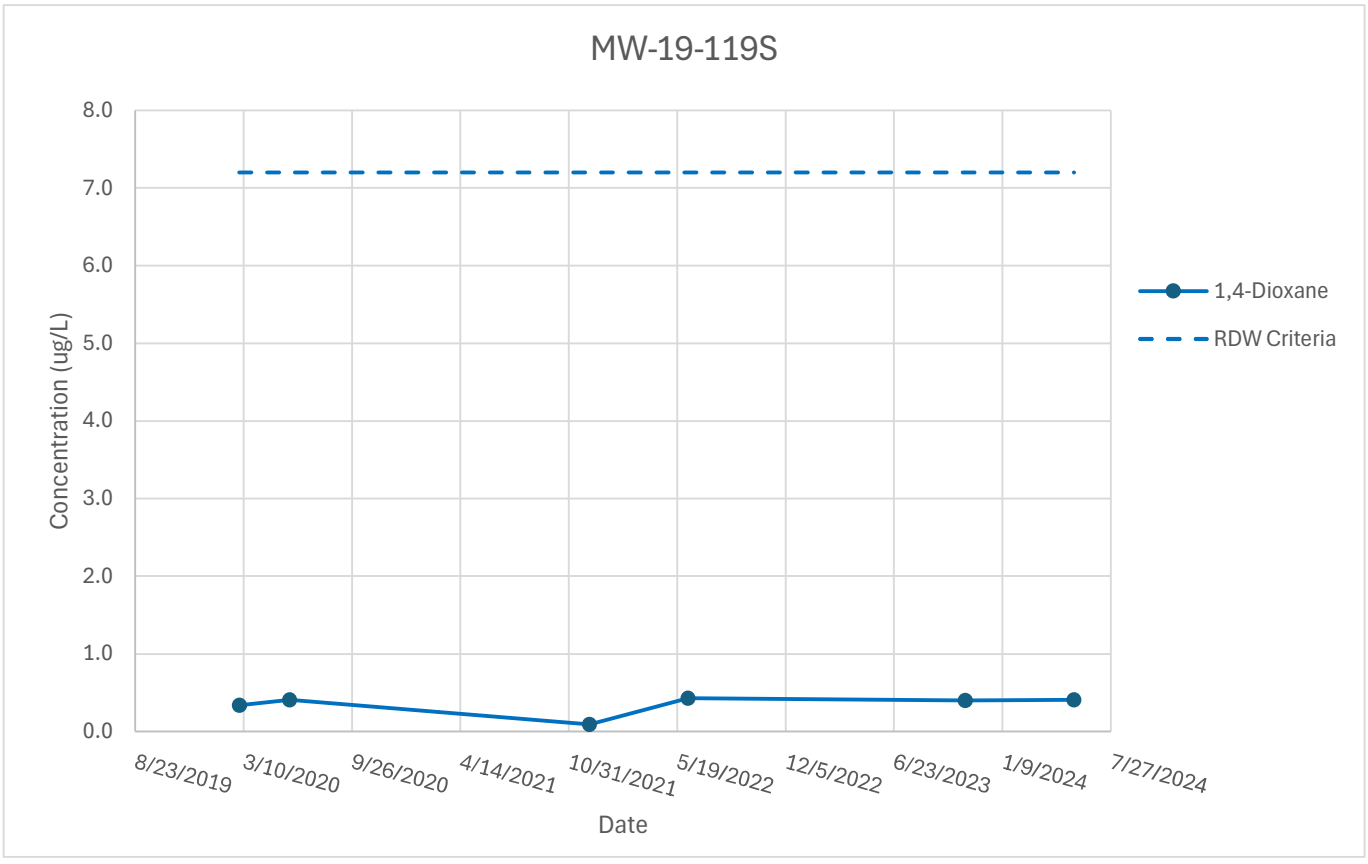

MW-13-47
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6.0
5.0
4.0
3.0
2.0
1.0
0.0
Concentration (ug/L)
9/22/2017
2/4/2019
6/18/2020
10/31/2021
3/15/2023
7/27/2024
Date
1,4-Dioxane
RDW Criteria

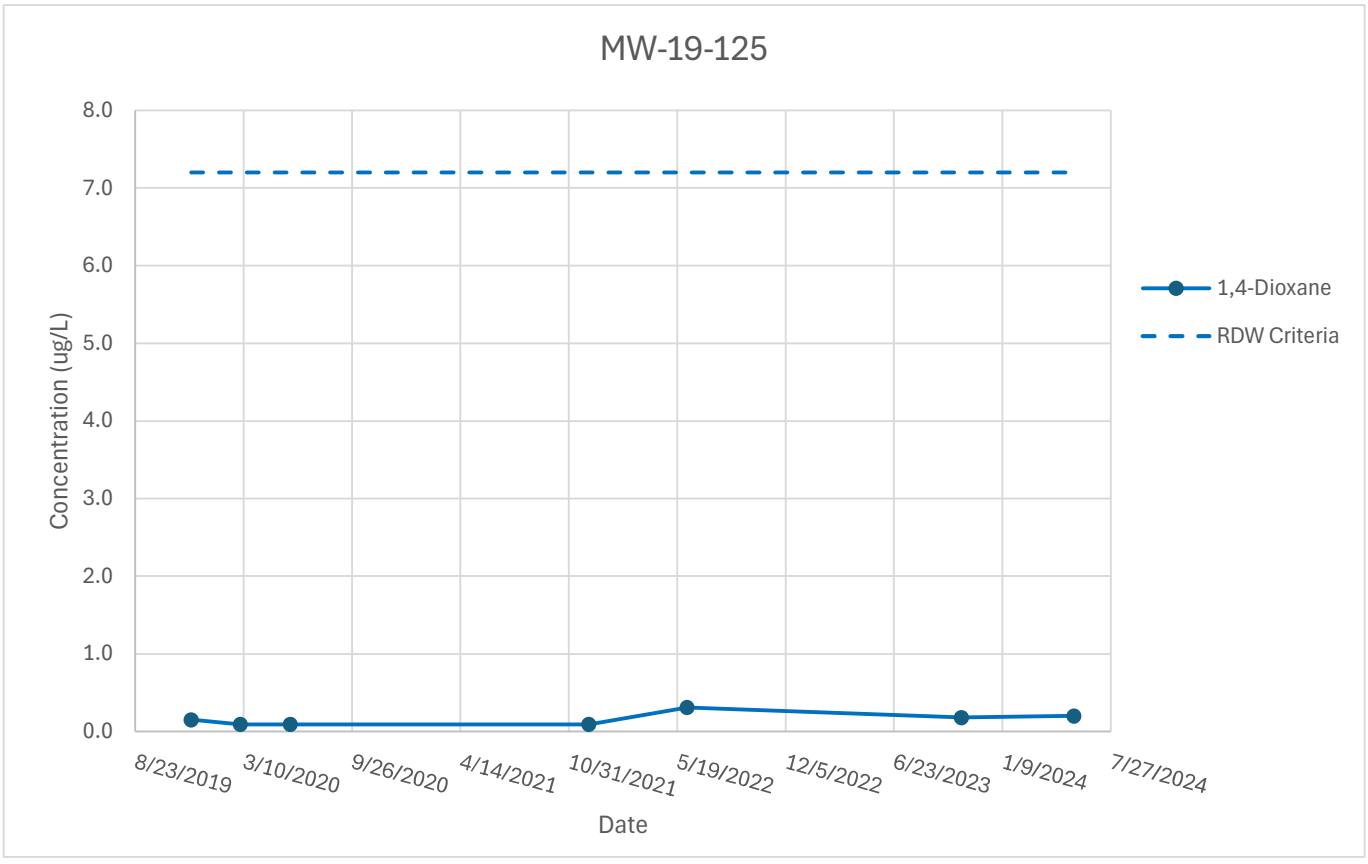

MW-17-87
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7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
Concentration (ug/L)
9/22/2017
2/4/2019
6/18/2020
10/31/2021
3/15/2023
7/27/2024
Date
1,4-Dioxane
RDW Criteria

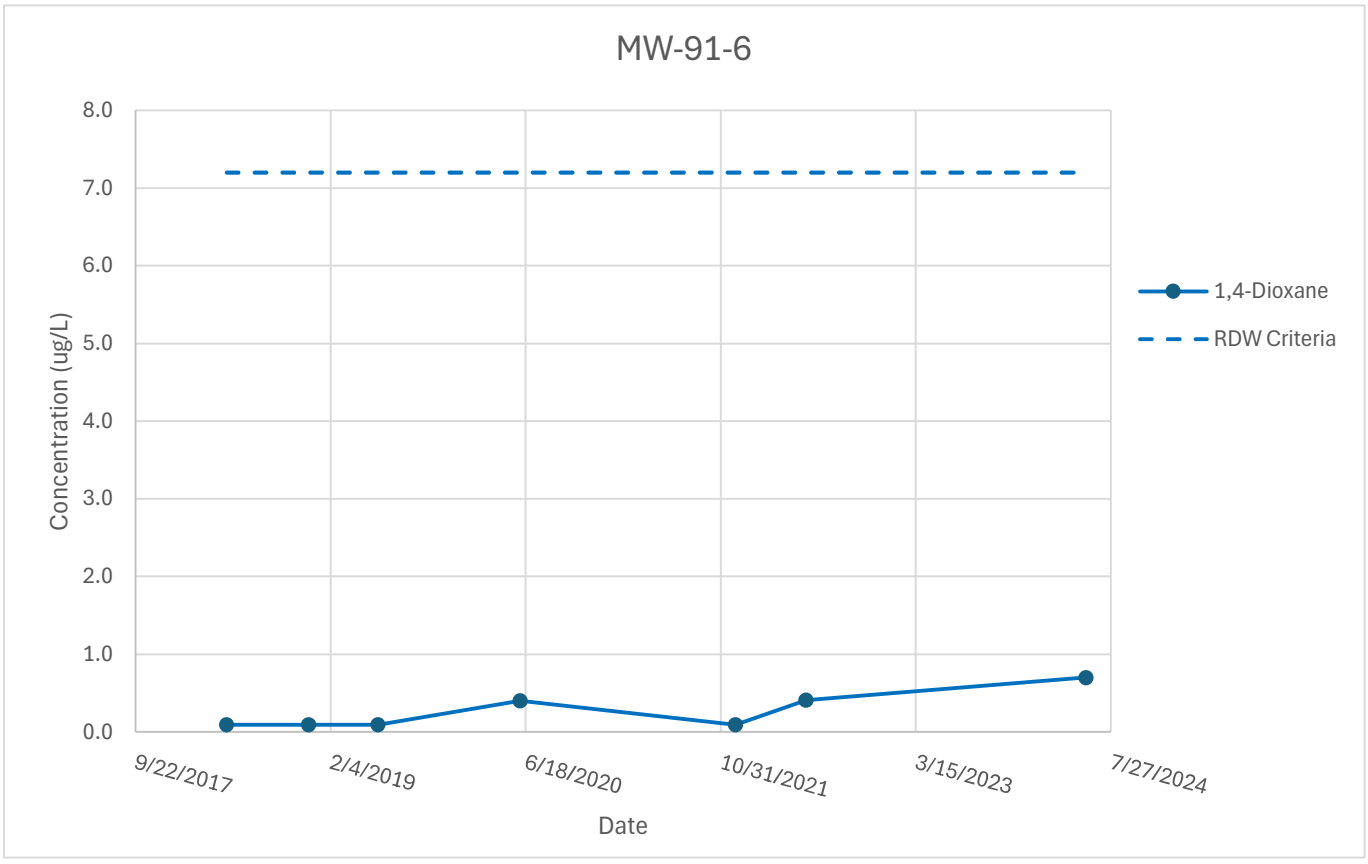

MW-19-118D
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
Concentration (ug/L)
8/23/2019
3/10/2020
9/26/2020
4/14/2021
10/31/2021
5/19/2022
12/5/2022
6/23/2023
1/9/2024
7/27/2024
Date
1,4-Dioxane
RDW Criteria


MW-19-118S
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
Concentration (ug/L)
8/23/2019
3/10/2020
9/26/2020
4/14/2021
10/31/2021
5/19/2022
12/5/2022
6/23/2023
1/9/2024
7/27/2024
Date
1,4-Dioxane
RDW Criteria


MW-19-119D
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
Concentration (ug/L)
8/23/2019
3/10/2020
9/26/2020
4/14/2021
10/31/2021
5/19/2022
12/5/2022
6/23/2023
1/9/2024
7/27/2024
Date
1,4-Dioxane
RDW Criteria


MW-19-119S
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
Concentration (ug/L)
8/23/2019
3/10/2020
9/26/2020
4/14/2021
10/31/2021
5/19/2022
12/5/2022
6/23/2023
1/9/2024
7/27/2024
Date
1,4-Dioxane
RDW Criteria


MW-19-125
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
Concentration (ug/L)
8/23/2019
3/10/2020
9/26/2020
4/14/2021
10/31/2021
5/19/2022
12/5/2022
6/23/2023
1/9/2024
7/27/2024
Date
1,4-Dioxane
RDW Criteria


MW-91-6
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
Concentration (ug/L)
9/22/2017
2/4/2019
6/18/2020
10/31/2021
3/15/2023
7/27/2024
Date
1,4-Dioxane
RDW Criteria

Appendix E

MW-14-58-R Area Perched VOC Distribution Map

VOCs	Res Drinking Water	Res SSVIAC Slab/GWNIC[2]	Res SSVIAC Base/GW10-ft[3]
1,1,1-TCA	200	17,000	8,700
1,1-DCA	880	130	67
1,1-DCE	7.0	320	170
Chloroethane	430	NA	NA
cis-1,2-DCE	70	90	48
Vinyl chloride	2.0	1.7	0.96
1,4-Dioxane	7.2	29,000	14,000

APC MW-7D (836.46)

Analyte	ug/L
1,1-DCA	43
Chloroethane	9 J

APC MW-8S (837.58)

Analyte	ug/L
1,1-DCA	0.77 J
Cis-1,2-DCE	0.37 J

APC MW-9D (837.59)

Analyte	ug/L
1,1,1-TCA	0.21J
1,1-DCA	2.0
1,1-DCE	3.0
Cis-1,2-DCE	11

APC MW-16 (831.49)

Analyte	ug/L
1,1-DCA	0.56
Cis-1,2-DCE	0.34 J

APC MW-15 (837.25)

Analyte	ug/L
1,1-DCA	0.45
Cis-1,2-DCE	0.3 J

APC MW-13S (845.25)

Analyte	ug/L
1,1,1-TCA	3.0
1,1-DCA	**158**
1,1-DCE	2.0
Chloroethane	39
Cis-1,2-DCE	**73**
VC	**21**

APC MW-13D (839.72)

Analyte	ug/L
1,1-DCA	3.0

APC MW-2D (843.42)

Analyte	ug/L
1,1-DCA	0.73

APC MW-4S (843.59)

Analyte	ug/L
1,1,1-TCA	12
1,1-DCA	0.78 J

APC MW-14S (841.58)

Analyte	ug/L
1,1-DCA	3.0

APC MW-6D (831.63)

Analyte	ug/L
1,1-DCA	27
Chloroethane	32
Cis-1,2-DCE	0.21 J

APC MW-11S (838.33)

Analyte	ug/L
1,1-DCA	3.0
Chloroethane	6.0
Cis-1,2-DCE	22

MW-22-153 (831.94)

Analyte	ug/L
1,1-DCA	**119**
1,1-DCE	2.0

MW-22-156 (834.63)

Analyte	ug/L
1,1-DCA	**250**
1,1-DCE	**20**

VAP-P2-NL58 (847)

Analyte	ug/L
Toluene	2
--	--

VAP-P2-NL58 (840)

Analyte	ug/L
1,1-DCA	**230**
1,1-DCE	10

VAP-P2-NP59 (847)

Analyte	ug/L
1,1-DCA	9
1,1-DCE	1
Cis-1,2-DCE	1

VAP-P2-NP58 (838.3)

Analyte	ug/L
1,1-DCA	**78**
Cis-1,2-DCE	2
--	--

VAP-P2-NT58 (847)

Analyte	ug/L
1,1-DCA	4
1,1-DCE	1

VAP-P2-NT58 (840.2)

Analyte	ug/L
1,1-DCA	19
1,1-DCE	--

MW-91-6, MW-13-46, MW-13-47, MW-13-48, MW-13-34, MW-13-49, P2-MH-2, MW-21-142, P2-MH-30, P2-MH-29, MW-14-63, MW-12-02, APC MW-7D, APC MW-7S, APC MW-8S, APC MW-8D, APC MW-01, APC MW-9D, APC MW-16, P2-MW-03, APC MW-2D, APC MW-15, APC MW-13S, APC MW-13D, MW-16-80, APC MW-14D, APC MW-14S, APC MW-4D, APC MW-4S, MW-20-126, MW-23-161, MW-23-162, TW-15-12, MW-13-43, MW-13-44, APC MW-5D, APC MW-6S, APC MW-6D, MW-13-42, PW-14-02, AREA 2-11, MW-15-73, SB-P2-ML33, SB-P2-MM43, APC MW-12S, APC MW-12D, MW-22-155, MW-23-163, MW-20-127, AREA 2-27/65, MW-19-118S/D, AREA 2-8, APC MW-11S, APC MW-11D, MW-22-153, MW-14-58R, MW-19-125, MW-22-157, MW-17-87, MW-16-83, MW-22-156, AREA 2-26, VAP-P2-NL58, AREA 2-14, VAP-P2-NP59, VAP-P2-NT58, MW-12-09, MW-14-56, LMW-12-05

LEGEND

- LNAPL MONITORING WELL
- PERCHED ZONE MONITORING WELL
- DEEP OVERBURDEN MONITORING WELL
- WEATHERED BEDROCK MONITORING WELL
- BEDROCK MONITORING WELL
- APC MONITORING WELL
- SOIL BORINGS AND VAP WELLS
- EXCEEDS **RESIDENTIAL DW** CRITERIA OR **RES SSVIAC**
- NON-DETECT OR LESS THAN **RESIDENTIAL DW** CRITERIA AND **RES SSVIAC**
- AREA OF INTEREST
- SANITARY MANHOLES
- SANITARY LINES
- STORM MANHOLES
- STORM CATCH BASINS
- STORM LINES
- PLANT 2
- PLANT 3
- PLANT 6

NOTES:
-WELLS BEGINNING WITH "APC" LIST APC RESULTS; ALL OTHERS LIST RACER LANSING RESULTS.
-ALL VALUES LISTED IN ug/L.
-(847) = APPROX. SCREEN MIDPOINT
-DETECTIONS ARE POSTED, NON-DETECTS ARE NOT POSTED

0 50 100
SCALE IN FEET

RACER TRUST
PLANT 2
LANSING, MICHIGAN

PERCHED VOC DISTRIBUTION (NOT INCLUDING 1,4-DIOXANE)

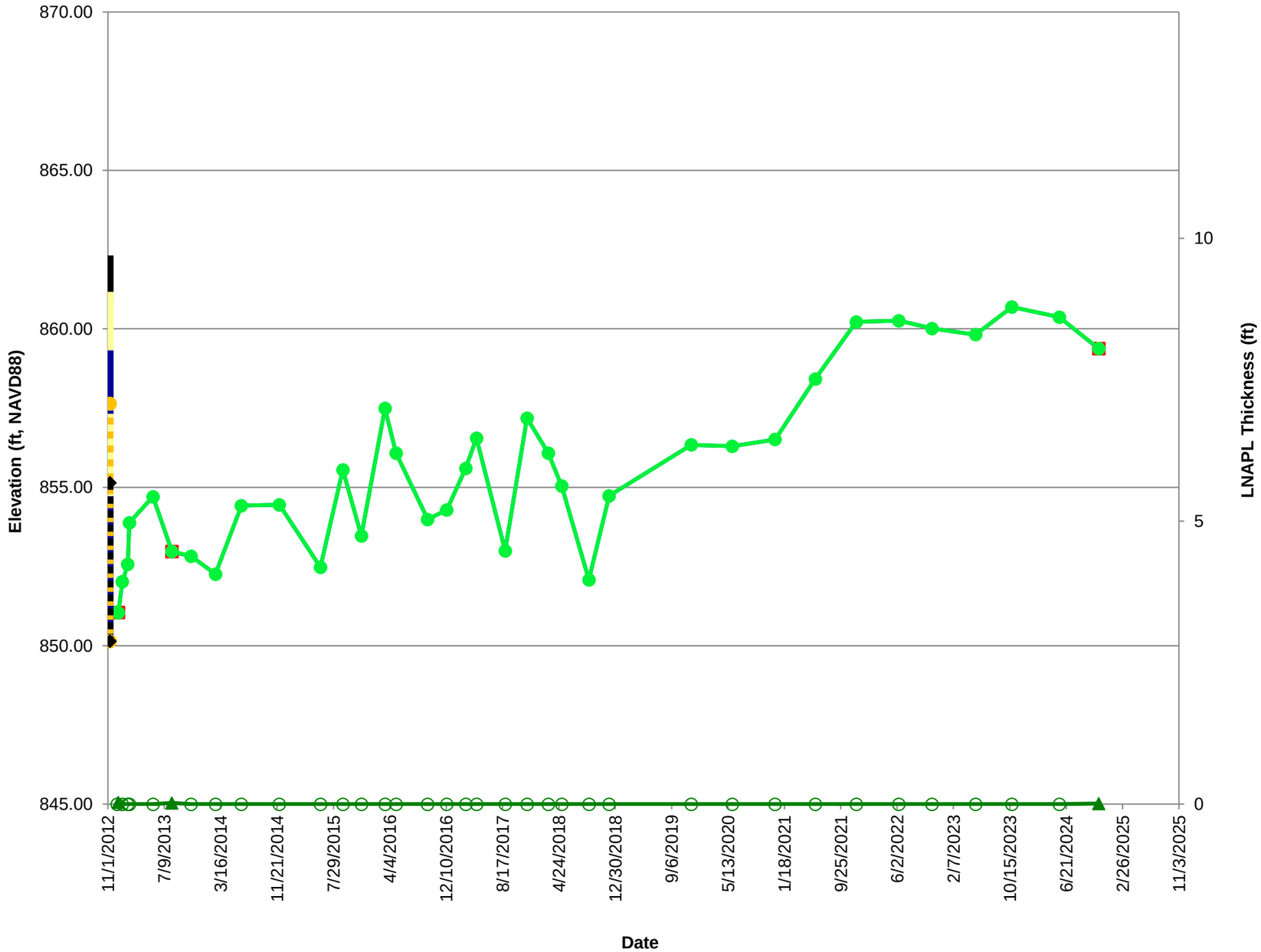
ARCADIS

FIGURE 3

CITY: Novi DIV: ENV PIC: J. BARRETT PM: T. LINDER TM: A. VILLHAUER TR: PROJECT NUMBER: 30214036 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
T:_ENV\RACER\Lansing_BuffaloData\MXDs\2025 APC Data Summary\2025 APC Data Summary.aprx PLOTTED: 2/18/2025 3:59 PM BY: VDavis

Appendix F

LNAPL Trend Graphs



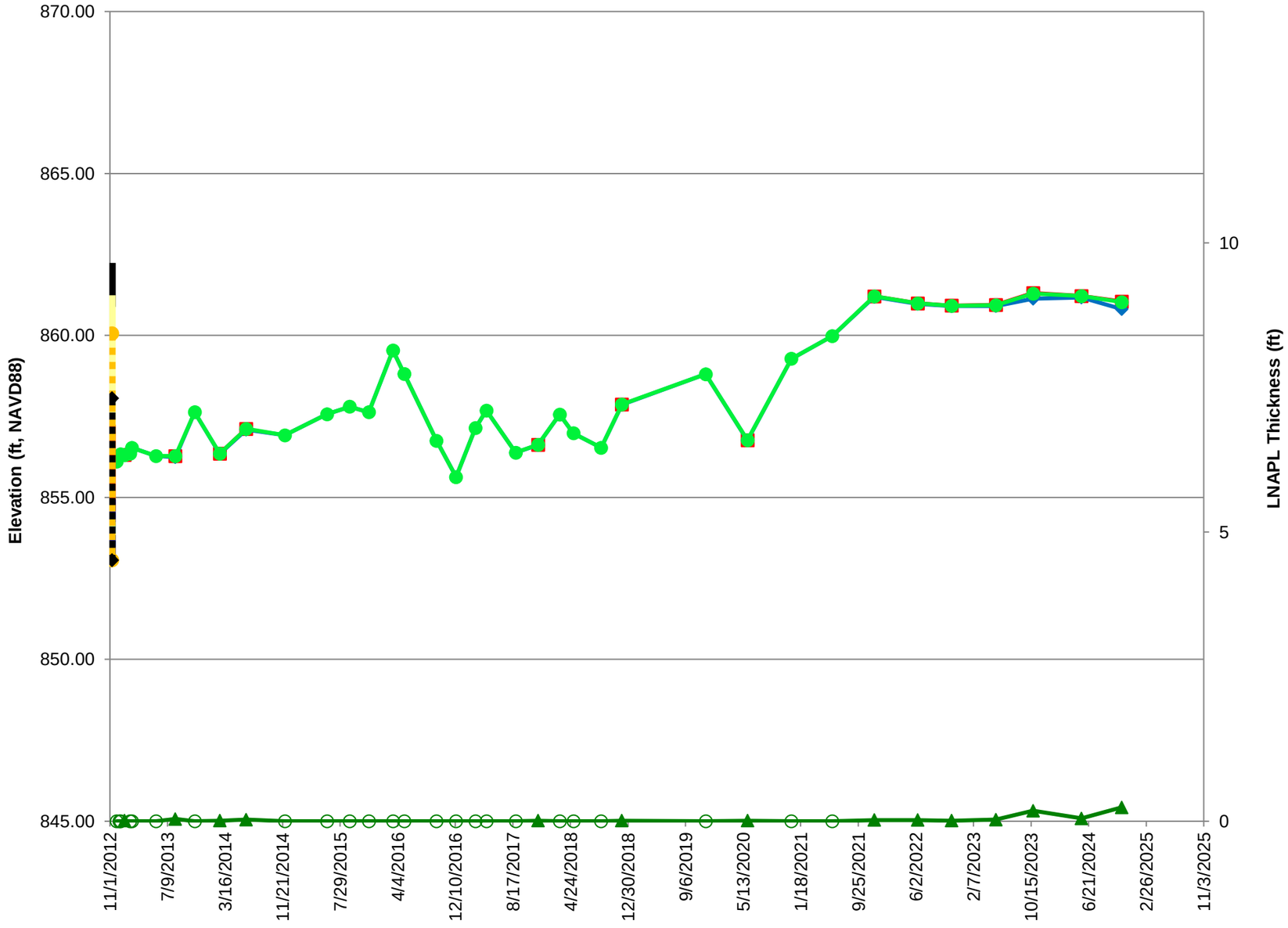
RACER Lansing
Lansing, MI

LMW-12-01 LNAPL HYDROGRAPH

ARCADIS

FIGURE

A



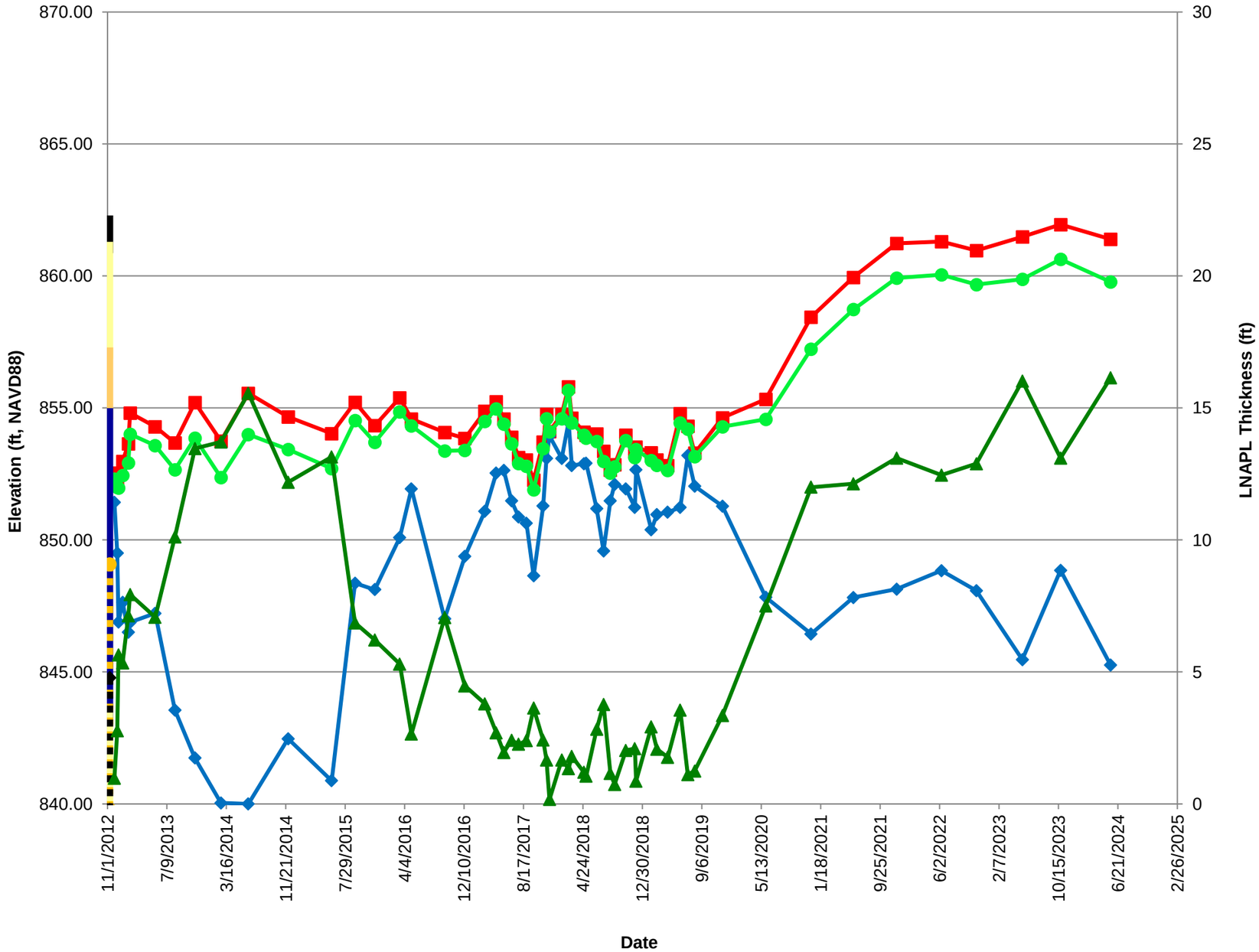
RACER Lansing
Lansing, MI

LMW-12-03S LNAPL HYDROGRAPH

ARCADIS

FIGURE

A



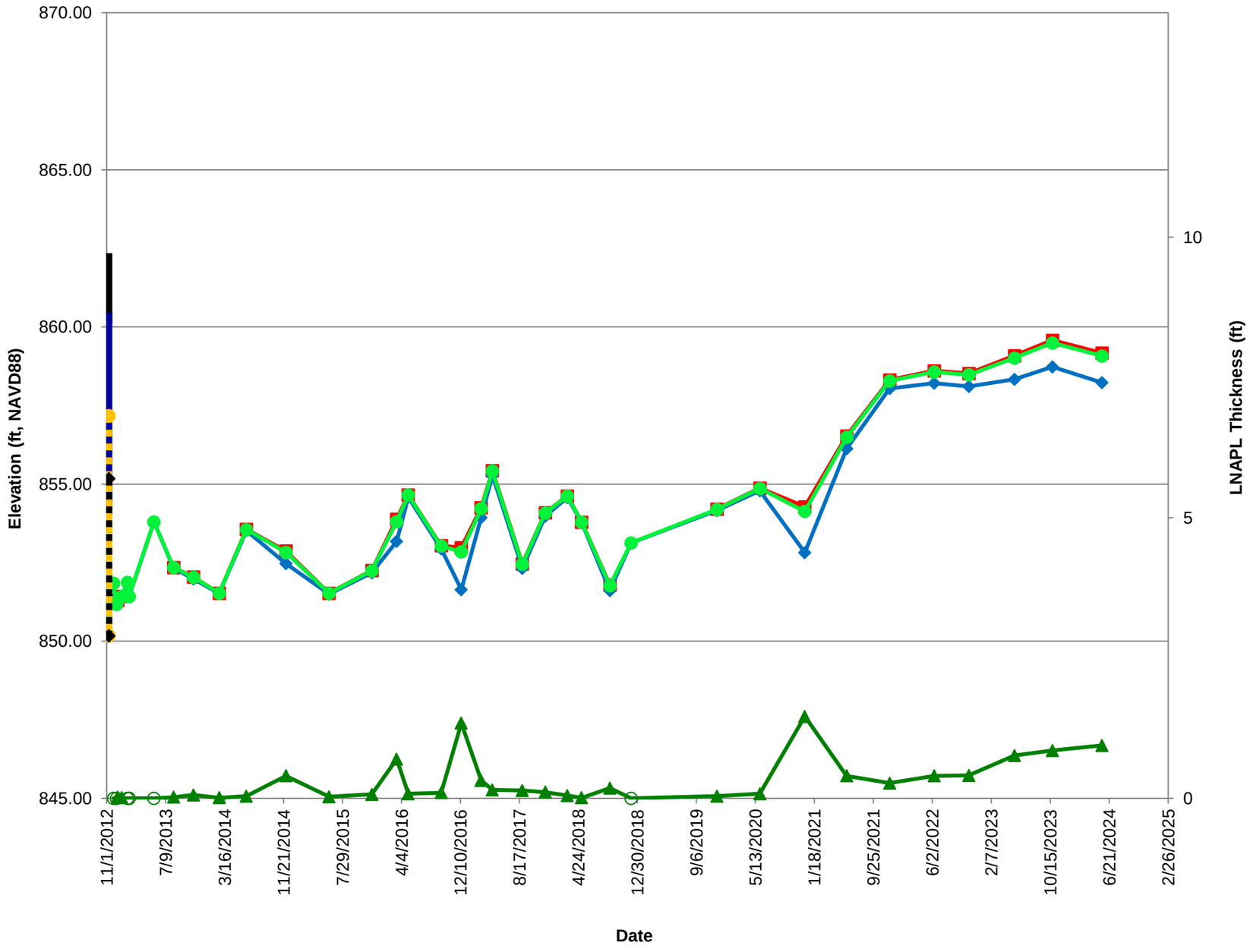
RACER Lansing
Lansing, MI

LMW-12-03D LNAPL HYDROGRAPH

ARCADIS

FIGURE

A



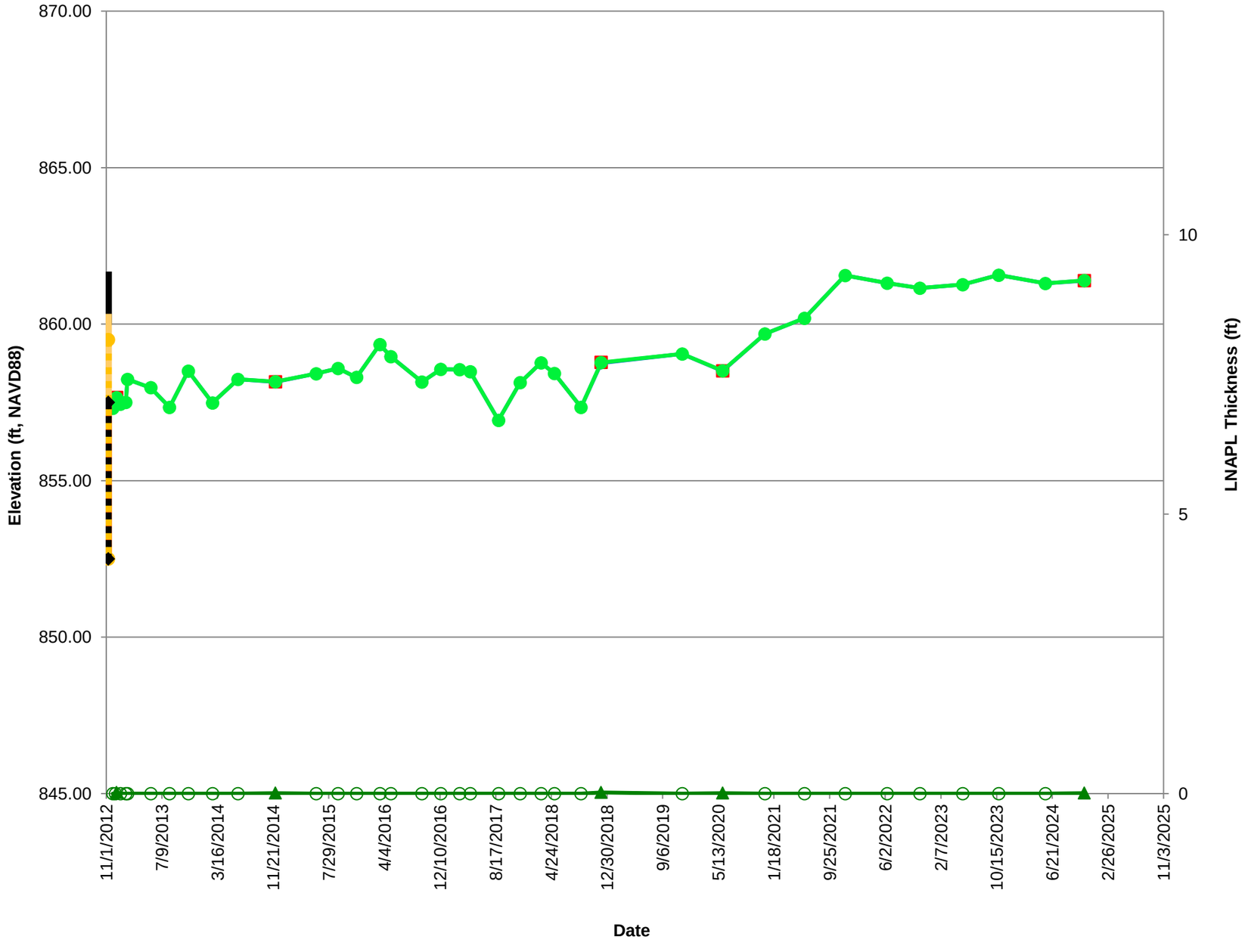
RACER Lansing
Lansing, MI

LMW-12-05 LNAPL HYDROGRAPH

ARCADIS

FIGURE

A



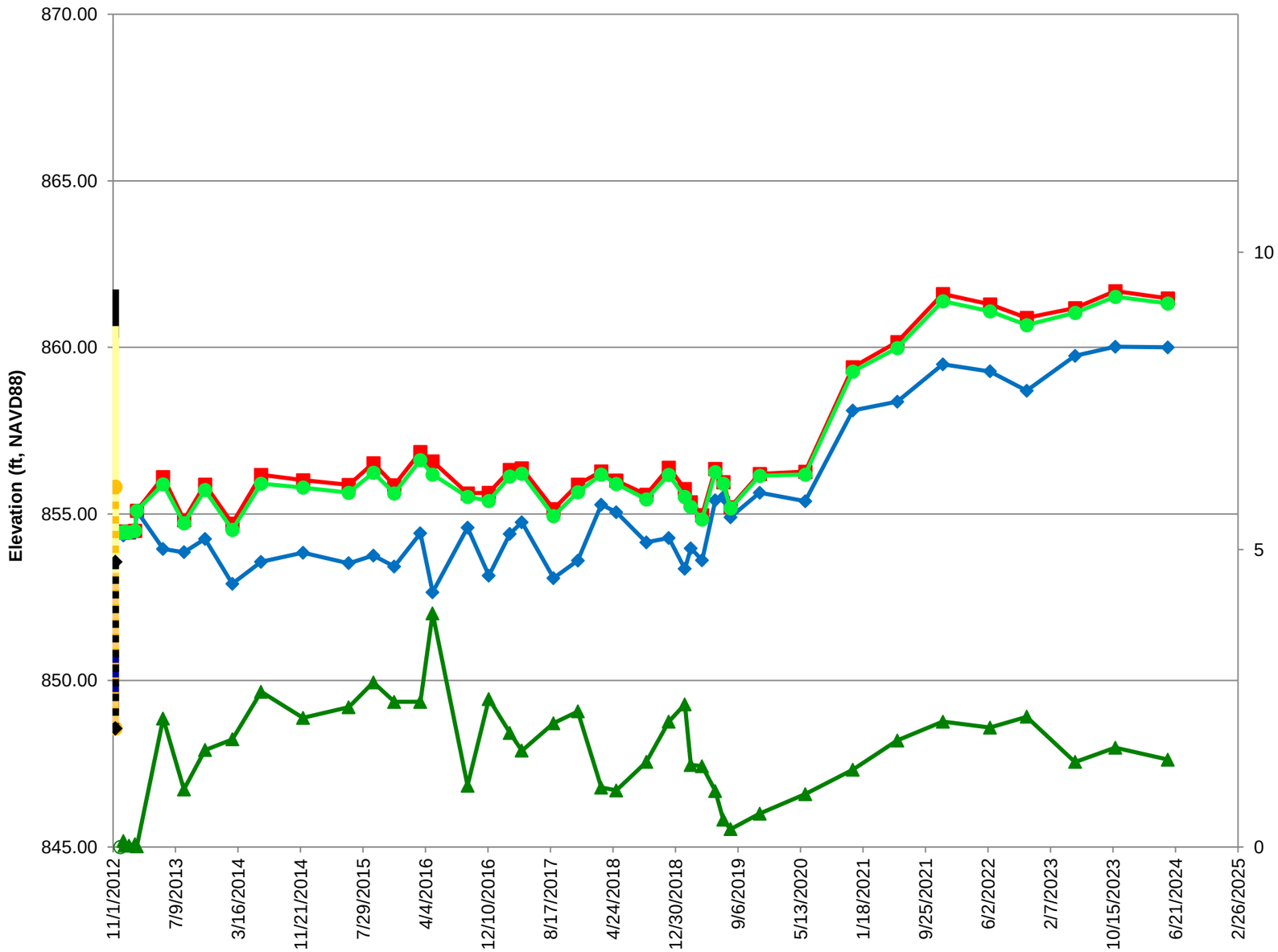
RACER Lansing
Lansing, MI

LMW-12-07 LNAPL HYDROGRAPH

ARCADIS

FIGURE

A



Air-NAPL Interface

NAPL-Water or Air-Water Interface

Potentiometric Surface

Concrete

Medium Sand

Coarse Sand

Clay

Filter Pack

Screened Interval

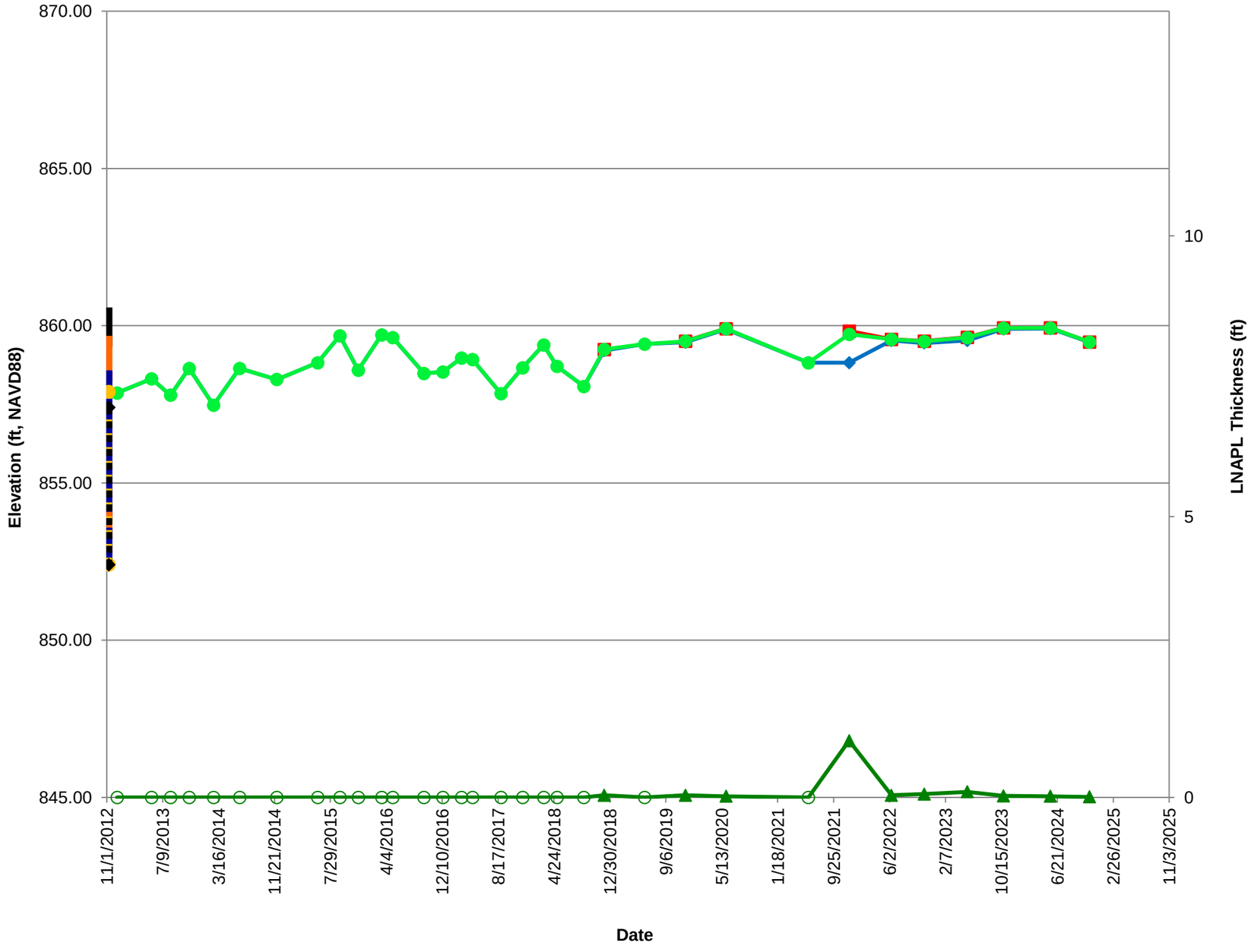
NAPL Thickness

RACER Lansing
Lansing, MI

LMW-12-08 LNAPL HYDROGRAPH

ARCADIS

FIGURE
A



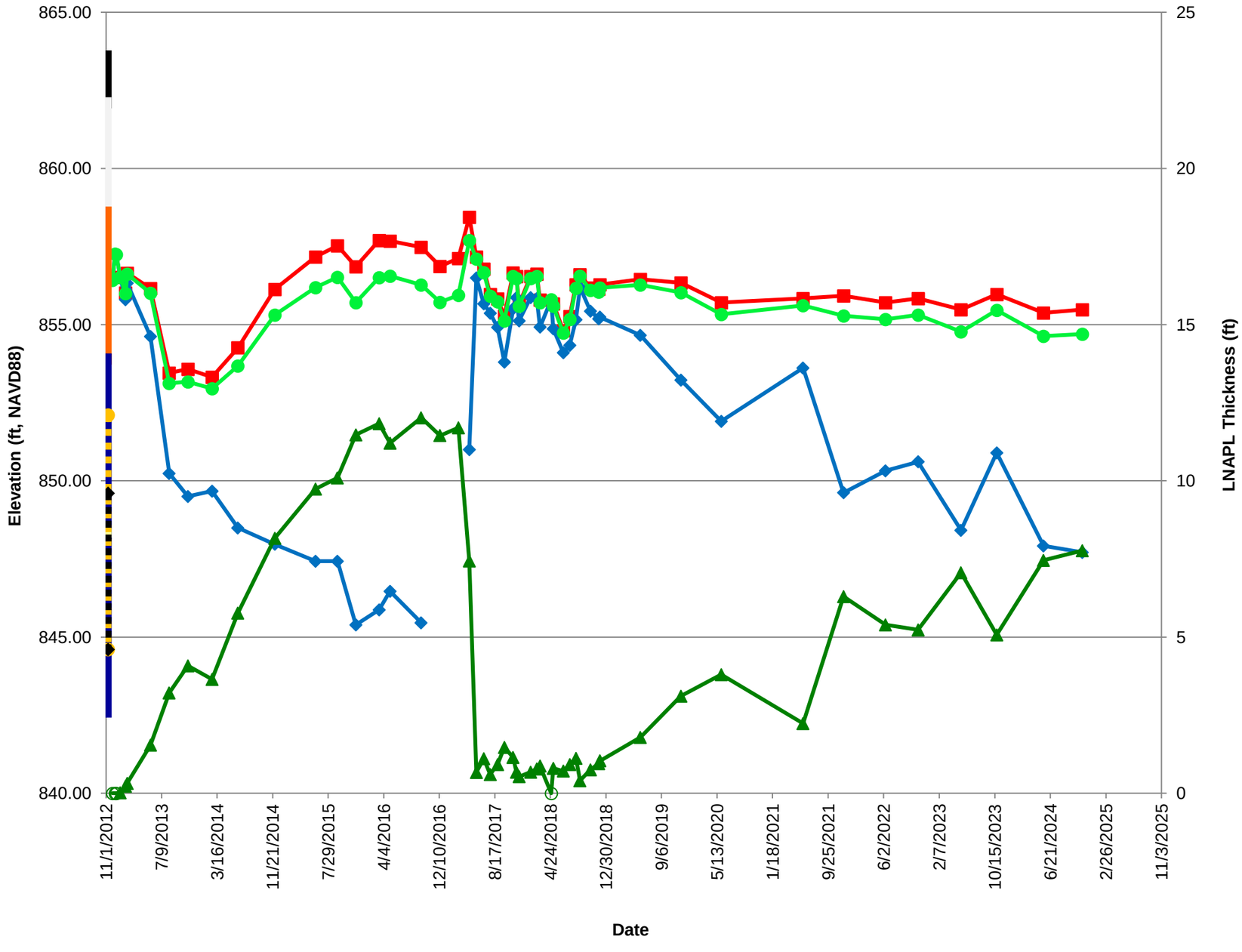
RACER Lansing
Lansing, MI

LMW-12-09 LNAPL HYDROGRAPH

ARCADIS

FIGURE

A

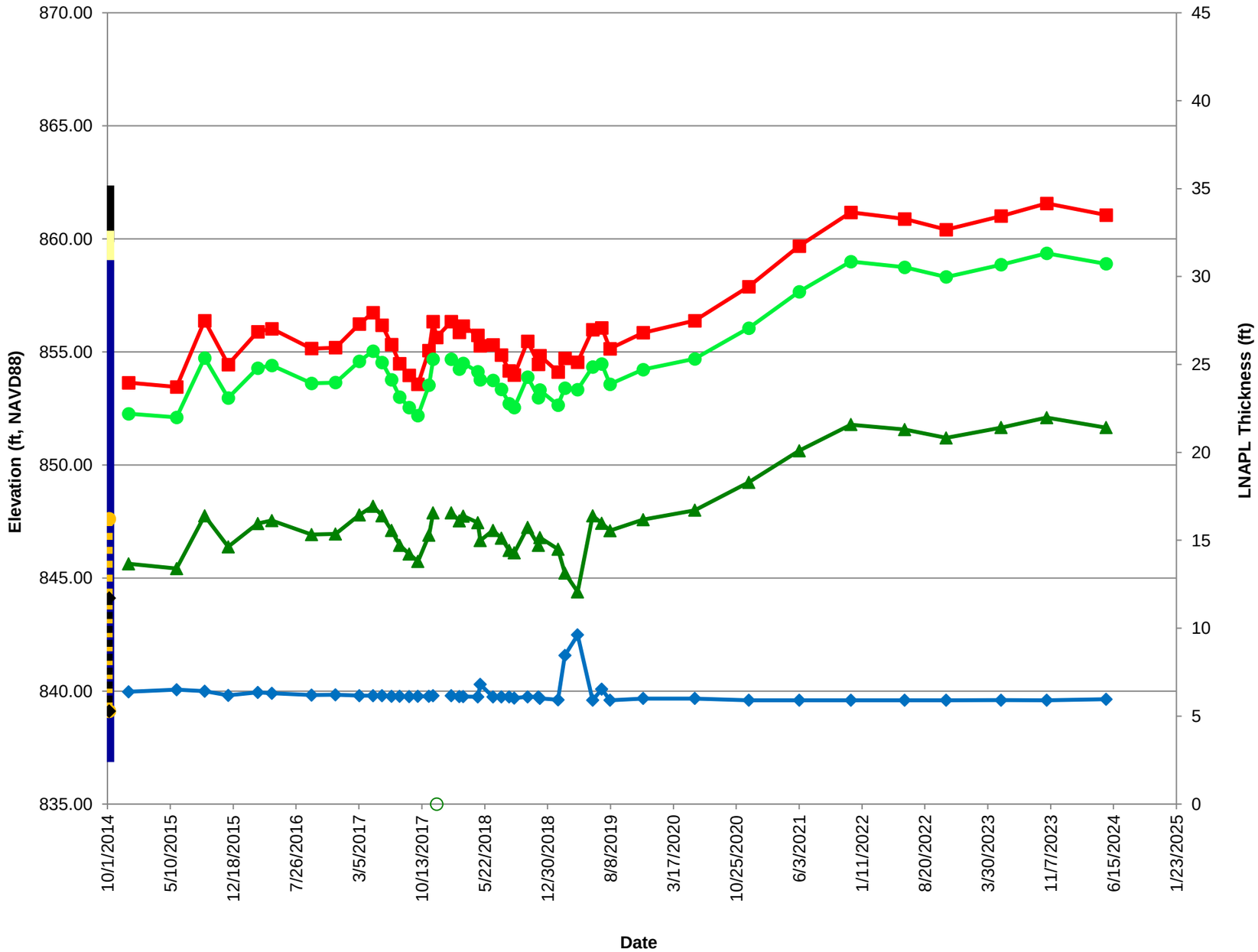


RACER Lansing
Lansing, MI

LMW-12-10 LNAPL HYDROGRAPH

ARCADIS

FIGURE
A



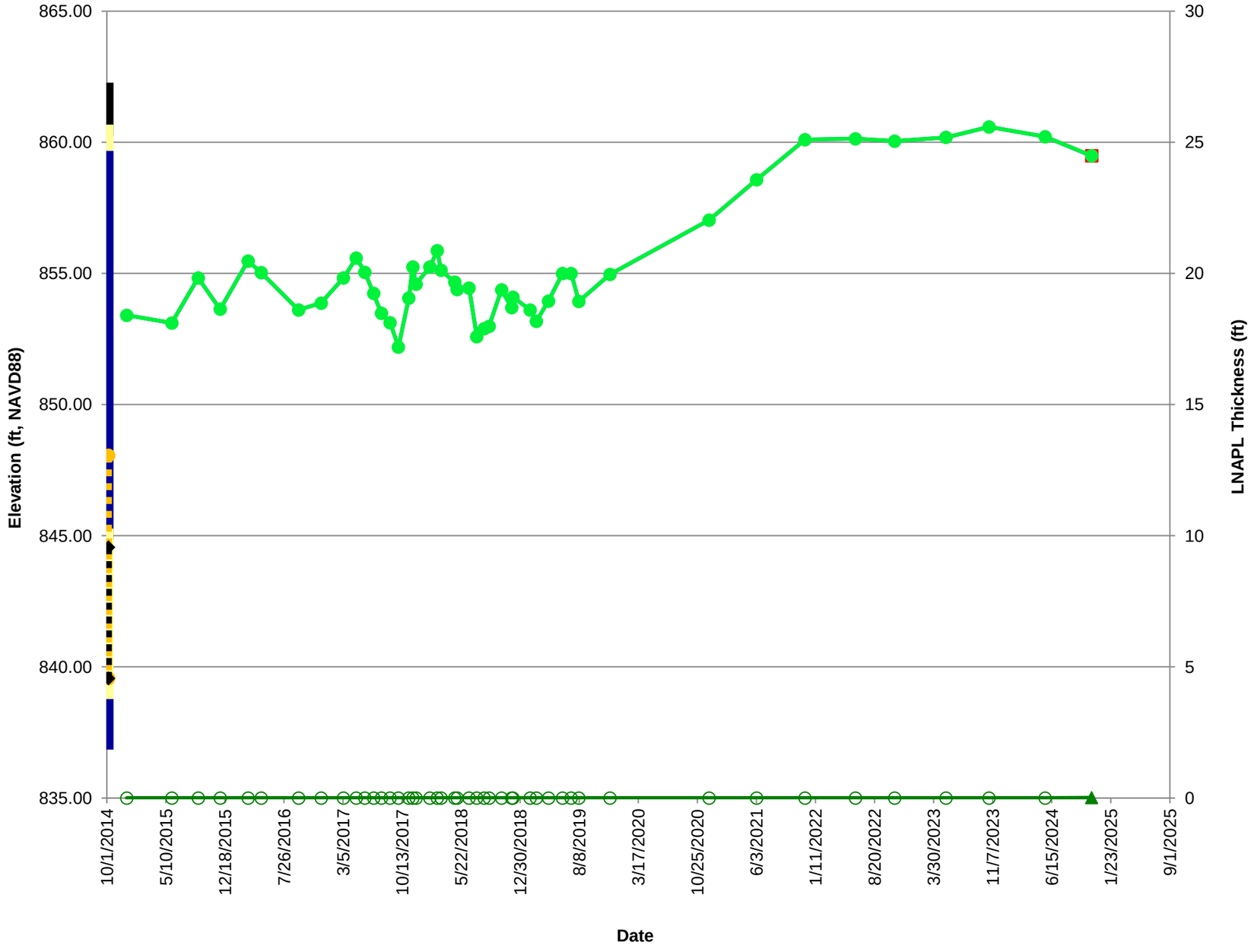
RACER Lansing
Lansing, MI

LMW-14-12D LNAPL HYDROGRAPH

ARCADIS

FIGURE

A



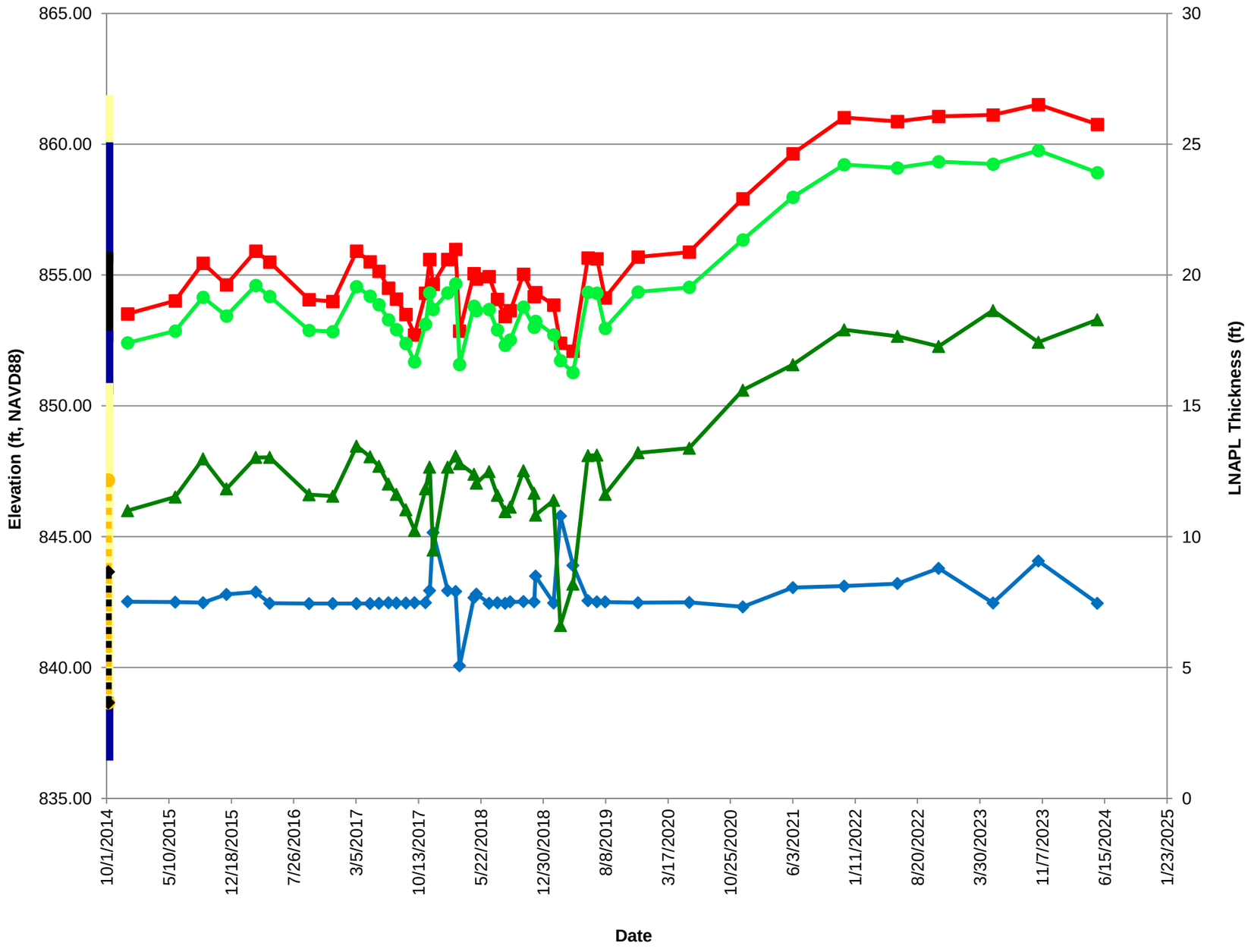
RACER Lansing
Lansing, MI

LMW-14-13D LNAPL HYDROGRAPH

ARCADIS

FIGURE

A



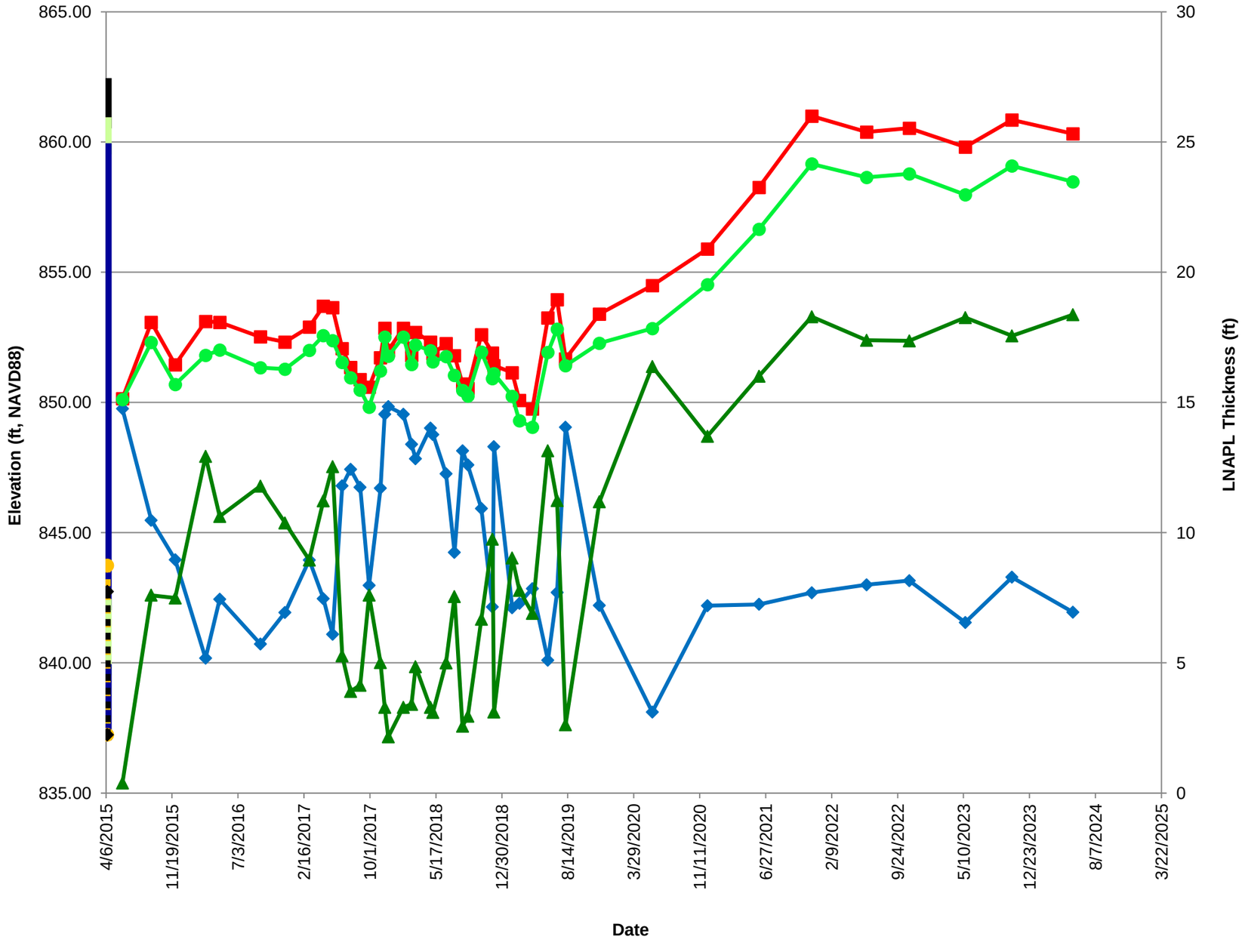
RACER Lansing
Lansing, MI

LMW-14-15D LNAPL HYDROGRAPH

ARCADIS

FIGURE

A



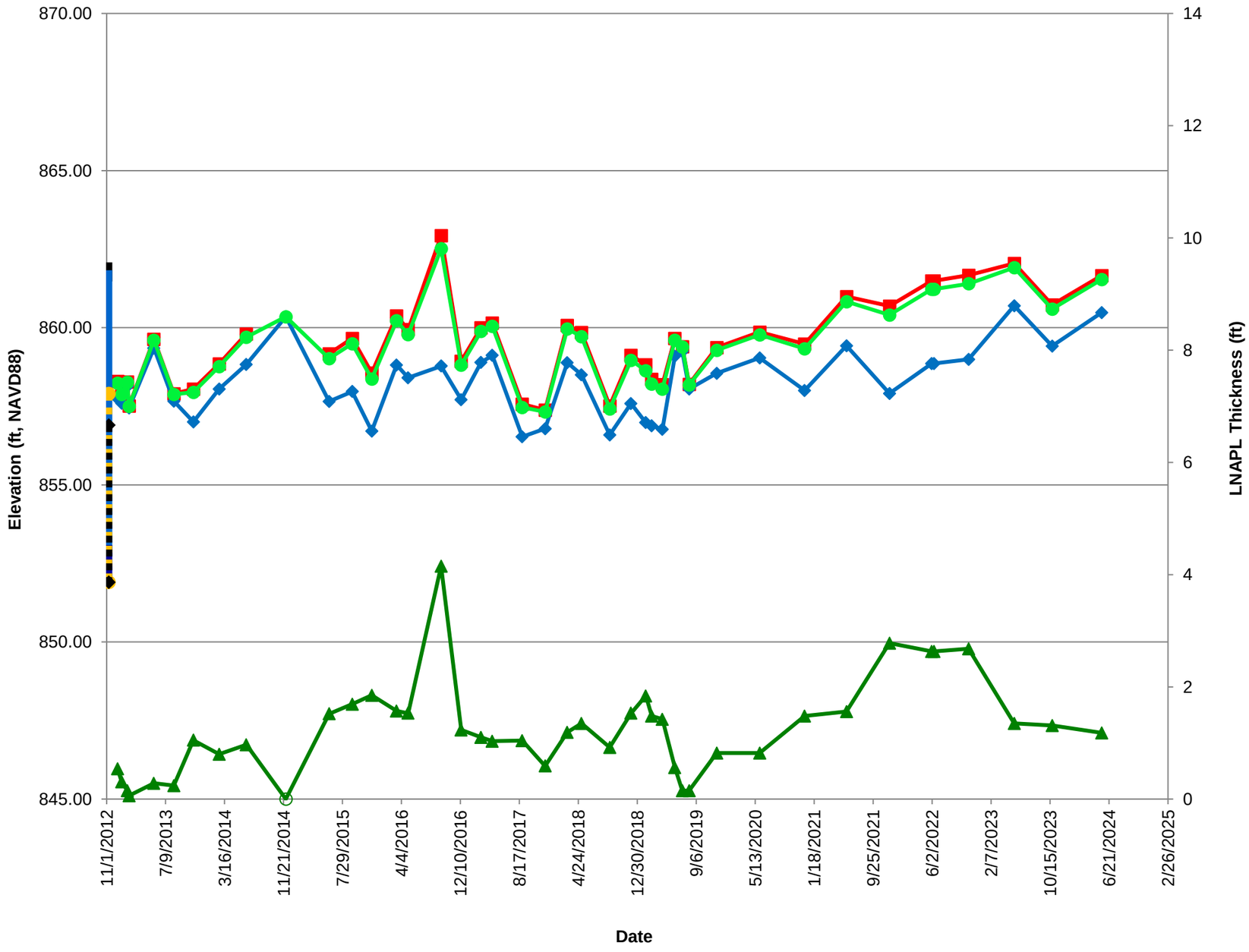
RACER Lansing
Lansing, MI

LMW-15-16D LNAPL HYDROGRAPH

ARCADIS

FIGURE

A



Air-NAPL Interface

NAPL-Water or Air-Water Interface

Potentiometric Surface

Concrete

Silty Clay

Clay

Filter Pack

Screened Interval

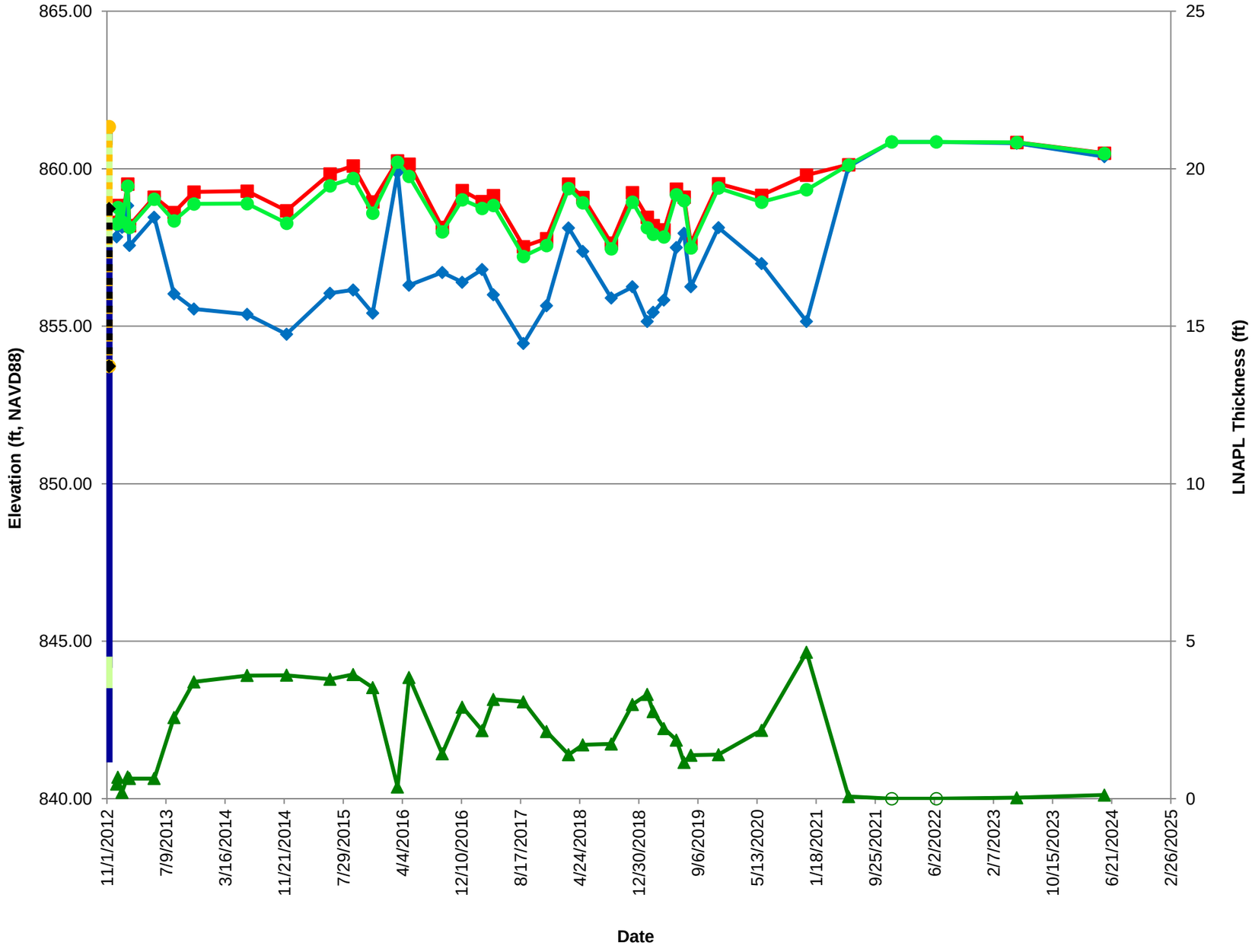
NAPL Thickness

RACER Lansing
Lansing, MI

P2-SB-37 LNAPL HYDROGRAPH

ARCADIS

FIGURE
A



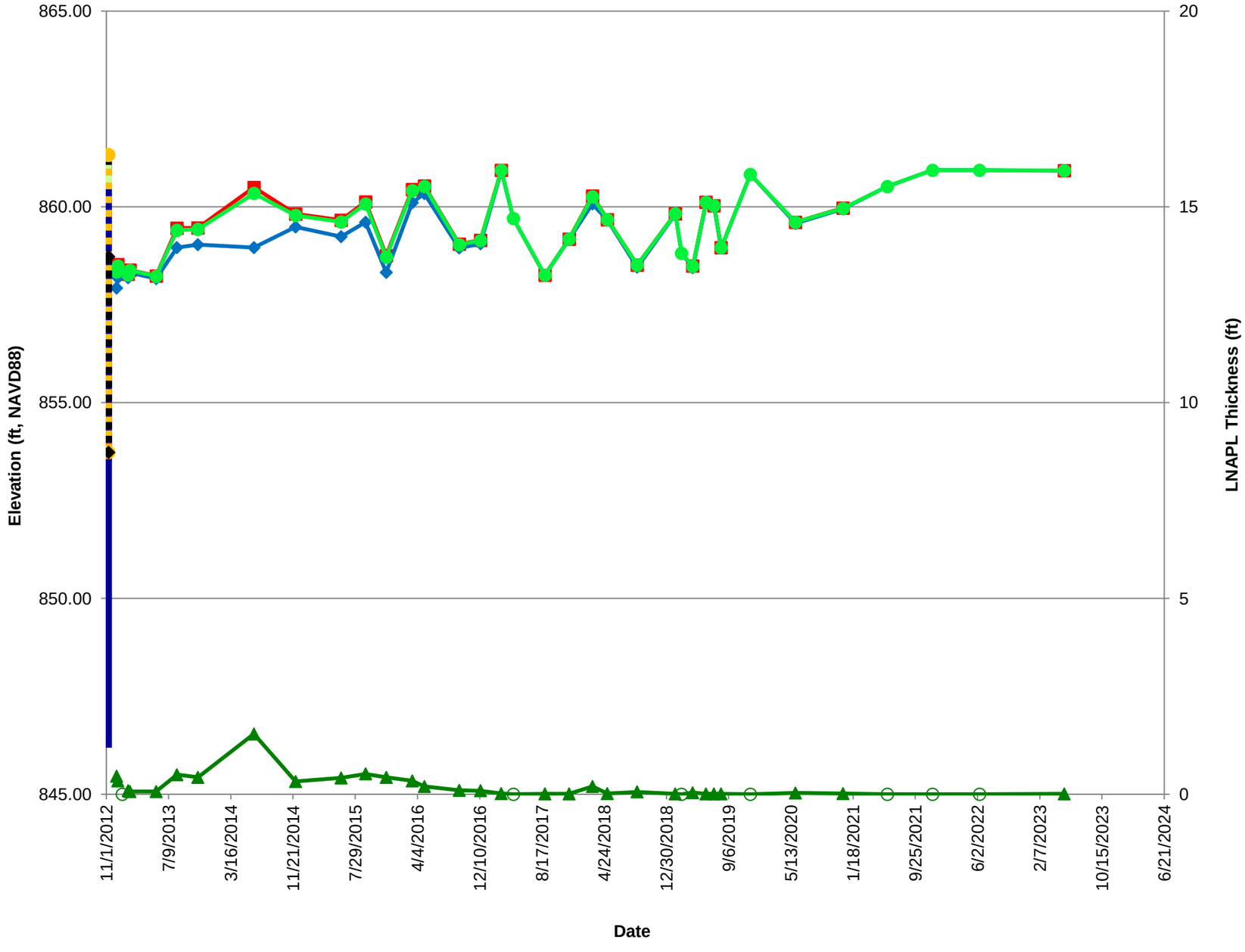
RACER Lansing
Lansing, MI

PMW-01 LNAPL HYDROGRAPH

ARCADIS

FIGURE

A



RACER Lansing
Lansing, MI

PMW-02 LNAPL HYDROGRAPH

ARCADIS

FIGURE
A

Appendix G

Groundwater Elevation Trend Hydrographs

Plant 2 Perched Wells

DTW (ft. below TOC)

0.00
5.00
10.00
15.00
20.00
25.00

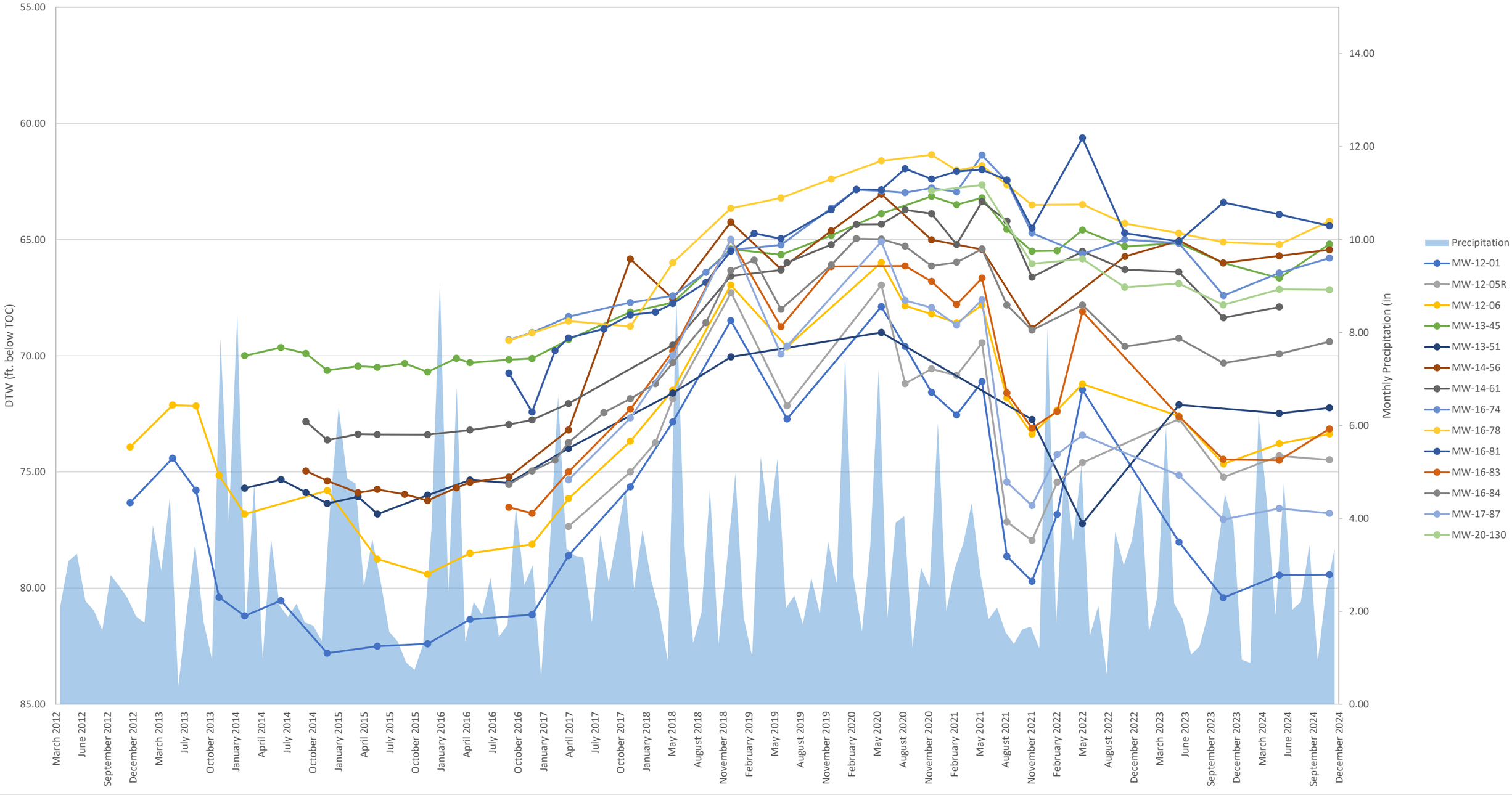
Monthly Precipitation (in

14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00

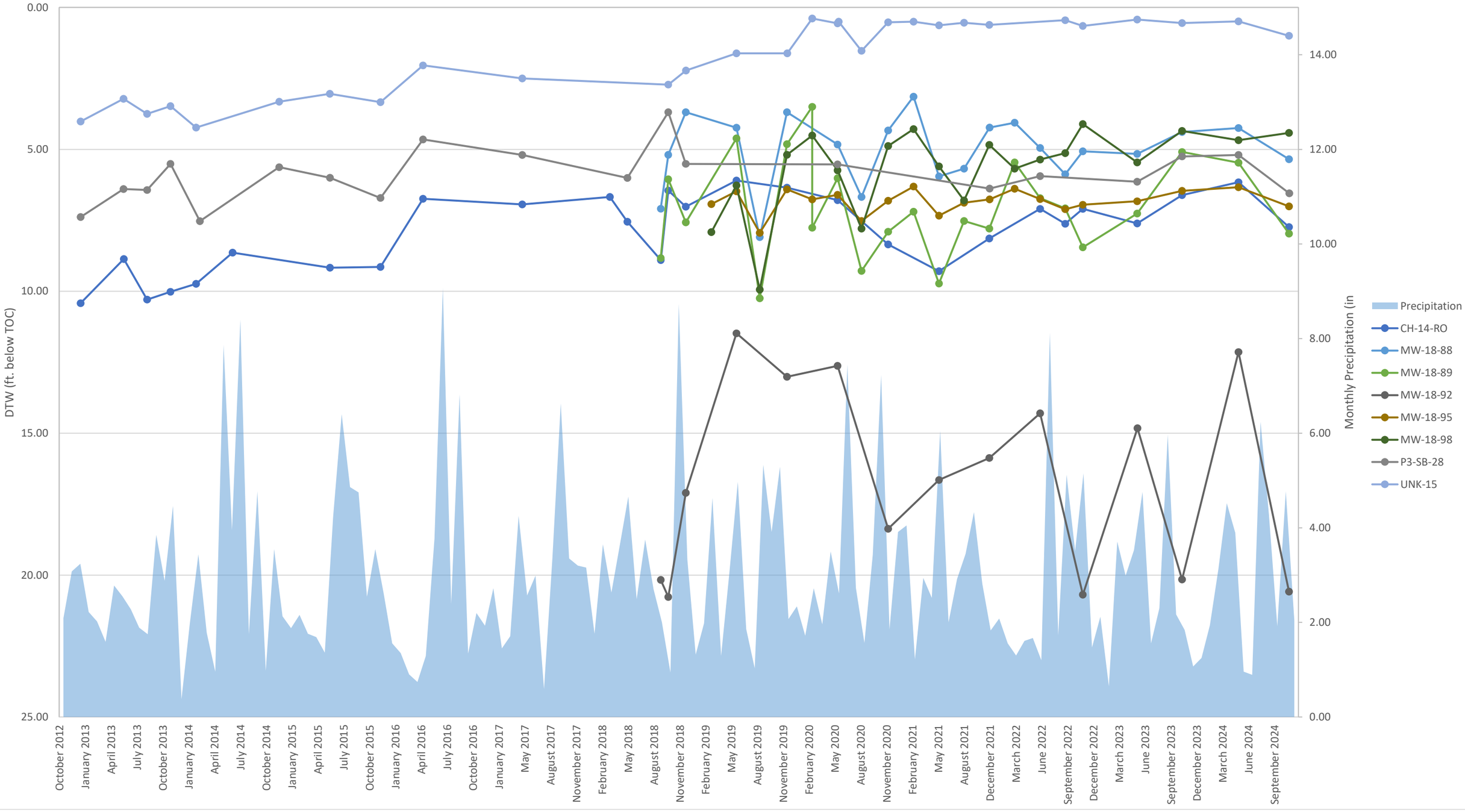
Precipitation
P2-SB-06
MW-01(2)
MW-12-07
MW-12-09
MW-14-55
MW-14-58
MW-14-60
MW-14-62
P2-MW-03
P2-SB-03
P2-SB-20

September 2011
December 2011
March 2012
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November 2022
February 2023
May 2023
August 2023
November 2023
February 2024
May 2024
August 2024
November 2024

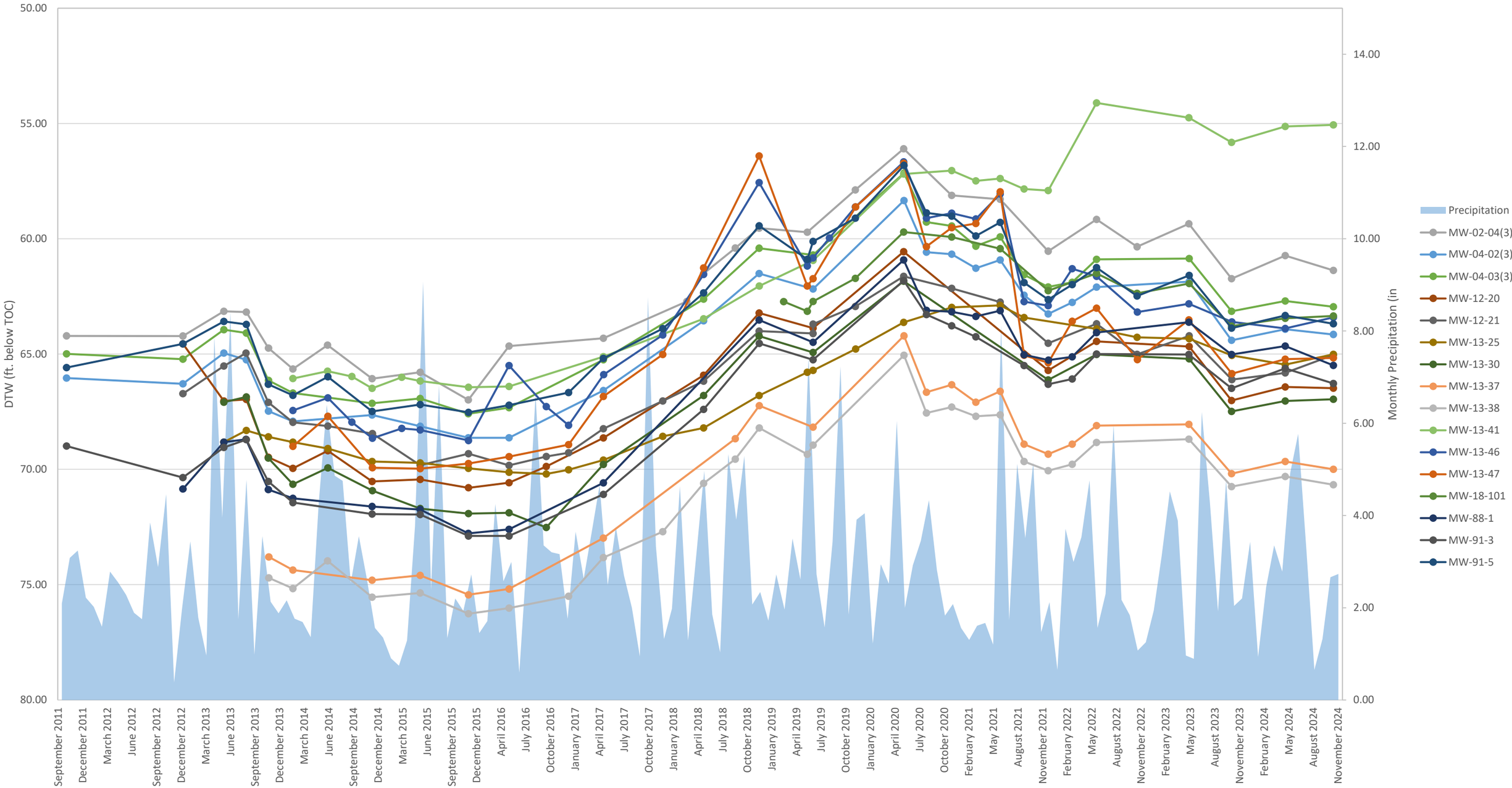
Plant 2 Deep Wells



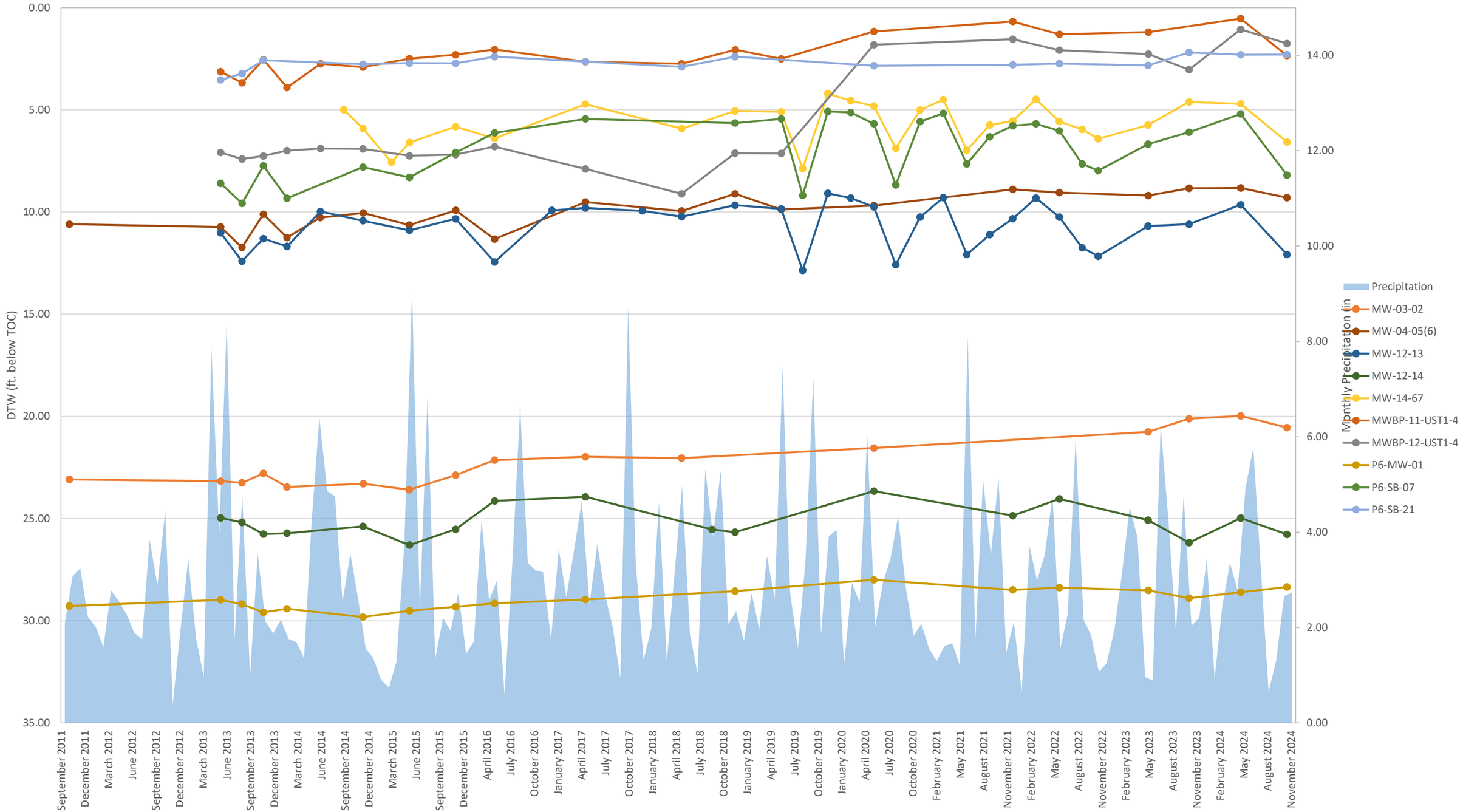
Plant 3 Perched Wells



Plant 3 Deep Wells



Plant 6 Perched Wells



Appendix H

Mann-Kendall Stability Analysis Trend Plots

TABLE H-1
Summary Statistics and Trend Results
RACER Lansing
Lansing, MI
April, 2025

Plant ID	Well ID	Analyte	Date Range	Figure	FOD	Detected Results Summary [1]				Mann-Kendall Test [2]			
						Range	Mean	Median	SD	Result[4]	MK Result Note	P-Value	S Value
Plant 2	MW-12-09	Perfluorooctanoic acid (PFOA)	06/19 - 05/24	H-1	10 / 10	11.9 - 19	14.8	15	2	UP	--	0.007	28
Plant 2	MW-13-45	1,4-Dioxane	12/13 - 11/24	H-2	28 / 29	24 - 58	40.5	40.5	11.3	NST	--	0.189	-48
Plant 2	MW-14-54	Benzene	09/14 - 05/24	H-3	12 / 12	2 - 820	408	490	296	UP	--	0.023	30
Plant 2	MW-14-54	Ethylbenzene	09/14 - 05/24	H-4	12 / 12	2 - 1710	788	925	612	UP	--	0.075	22
Plant 2	MW-14-54	Isopropyl benzene	09/14 - 05/24	H-5	9 / 12	2 - 70	42.8	50	19.8	UP	--	0.030	28
Plant 2	MW-14-54	m&p-Xylene	09/14 - 05/24	H-6	11 / 12	109 - 1610	795	840	461	UP	--	0.002	42
Plant 2	MW-14-54	o-Xylene	09/14 - 05/24	H-7	11 / 12	10 - 200	59.2	40	63	NST	--	0.168	15
Plant 2	MW-14-56	1,4-Dioxane	09/14 - 04/24	H-8	17 / 19	6 - 18	9.9	9	3.9	UP	--	<0.001	123
Plant 2	MW-14-58R	1,4-Dioxane	12/21 - 11/24	H-9	12 / 12	173 - 520	277	235	117	DWN	--	0.065	-23
Plant 2	MW-14-59	Perfluorooctanoic acid (PFOA)	06/19 - 05/24	H-10	9 / 10	6.7 - 15	9.9	8.8	3	UP	--	0.030	22
Plant 2	MW-14-59	1,1-Dichloroethene	09/14 - 05/24	H-11	12 / 12	16 - 39	24.4	22.5	7.4	DWN	--	0.011	-34
Plant 2	MW-14-59	1,4-Dioxane	09/14 - 05/24	H-12	14 / 14	7 - 280	113	70	99.4	DWN	--	<0.001	-82
Plant 2	MW-14-60	Perfluorooctane sulfonic acid (PFOS)	05/18 - 05/24	H-13	10 / 11	5.6 - 50	26.9	30	14.7	UP	--	0.031	25
Plant 2	MW-14-60	Perfluorooctanoic acid (PFOA)	05/18 - 05/24	H-14	11 / 11	14.7 - 41	29.4	29	9.8	UP	--	0.036	24
Plant 2	MW-14-60	1,4-Dioxane	09/14 - 05/24	H-15	14 / 14	6 - 200	105	123	67.6	DWN	--	<0.001	-82
Plant 2	MW-14-60	Vinyl chloride	09/14 - 05/24	H-16	12 / 12	2 - 12	5.2	3.5	3.3	NST	--	0.263	10
Plant 2	MW-14-61	1,4-Dioxane	09/14 - 11/24	H-17	21 / 24	5 - 152	42	13	55.4	NST	--	0.480	3
Plant 2	MW-14-62	Perfluorononanoic acid (PFNA)	05/18 - 05/24	H-18	11 / 11	5.1 - 11.9	8.1	7.7	1.8	NST	--	0.469	2
Plant 2	MW-14-62	Perfluorooctane sulfonic acid (PFOS)	05/18 - 05/24	H-19	11 / 11	47 - 86.8	61.8	54	13.6	DWN	--	0.025	-26
Plant 2	MW-14-62	Perfluorooctanoic acid (PFOA)	05/18 - 05/24	H-20	11 / 11	36.5 - 94.3	57.3	53	15.5	NST	--	0.438	3
Plant 2	MW-14-62	1,4-Dioxane	09/14 - 05/24	H-21	14 / 14	27 - 230	88.1	65	61.2	NST	--	0.371	-7
Plant 2	MW-15-72	1,4-Dioxane	03/16 - 11/24	H-22	27 / 27	11 - 310	181	190	91.3	DWN	--	0.013	-107
Plant 2	MW-15-73	1,4-Dioxane	03/16 - 04/24	H-23	11 / 13	3 - 11	7.2	7	2.8	UP	--	0.021	34
Plant 2	MW-16-80	1,4-Dioxane	06/16 - 04/24	H-24	16 / 17	7 - 46	24.3	23	7.7	NST	--	0.160	-25
Plant 2	MW-16-81	1,4-Dioxane	06/16 - 11/24	H-25	28 / 28	38 - 3200	912	510	985	DWN	--	0.041	-89
Plant 2	MW-16-84	1,4-Dioxane	09/16 - 11/24	H-26	27 / 27	15 - 81	48.9	47	16.3	NST	--	0.246	-34
Plant 2	MW-16-85	1,4-Dioxane	12/16 - 11/24	H-27	17 / 17	1 - 28	9.4	8	6.7	UP	--	0.040	43
Plant 2	MW-17-86	1,4-Dioxane	04/17 - 11/24	H-28	20 / 20	11 - 106	53.2	46	33	DWN	--	0.017	-66
Plant 2	MW-19-115	1,4-Dioxane	03/20 - 11/24	H-29	14 / 14	2 - 13	7.4	7.5	3	NST	--	0.118	-22
Plant 2	MW-19-116	1,4-Dioxane	03/20 - 11/24	H-30	14 / 14	54 - 148	75.4	68.5	25.5	UP	--	0.055	30
Plant 2	MW-19-120	1,4-Dioxane	12/19 - 11/24	H-31	15 / 15	7 - 198	61.5	15	71.7	DWN	--	<0.001	-75
Plant 2	MW-19-123	1,4-Dioxane	12/19 - 11/24	H-32	19 / 19	19 - 76	43.9	44	18.4	DWN	--	0.016	-62
Plant 2	MW-19-124	1,4-Dioxane	12/19 - 11/24	H-33	14 / 14	90 - 420	202	184	77.8	DWN	--	0.040	-33
Plant 2	MW-20-126	1,4-Dioxane	07/20 - 11/24	H-34	17 / 17	7 - 370	146	120	111	DWN	--	<0.001	-124
Plant 2	MW-20-127	1,4-Dioxane	07/20 - 11/24	H-35	17 / 17	85 - 180	143	142	23.6	UP	--	0.003	67
Plant 2	MW-20-129	1,4-Dioxane	07/20 - 11/24	H-36	17 / 17	60 - 140	89.1	80	24.5	DWN	--	<0.001	-85
Plant 2	MW-20-130	1,4-Dioxane	12/20 - 11/24	H-37	8 / 8	6 - 170	61	49.5	57.9	NST	--	0.452	-2
Plant 2	MW-21-139	Perfluorohexanesulfonic acid (PFHxS)	12/21 - 11/24	H-38	9 / 9	180 - 410	270	260	63	NST	--	0.155	11
Plant 2	MW-21-139	Perfluorononanoic acid (PFNA)	12/21 - 11/24	H-39	9 / 9	6.5 - 27	18.5	18	6	NST	--	0.155	11
Plant 2	MW-21-139	Perfluorooctane sulfonic acid (PFOS)	12/21 - 11/24	H-40	9 / 9	680 - 2100	1560	1700	460	NST	--	0.179	10
Plant 2	MW-21-139	Perfluorooctanoic acid (PFOA)	12/21 - 11/24	H-41	9 / 9	49 - 130	89.4	84	22.7	NST	--	0.209	9
Plant 2	MW-21-142	1,4-Dioxane	12/21 - 11/24	H-42	8 / 8	64 - 112	82.5	81.5	16.5	NST	--	0.274	6
Plant 2	MW-22-153	1,4-Dioxane	04/22 - 11/24	H-43	11 / 11	18 - 101	61	55	27	NST	--	0.241	-10
Plant 2	MW-22-155	1,4-Dioxane	09/22 - 11/24	H-44	9 / 9	36 - 410	213	160	124	DWN	--	0.038	-18
Plant 2	MW-22-156	1,1-Dichloroethene	02/23 - 11/24	H-45	7 / 7	15 - 38	22.6	20	7.4	DWN	5a	0.035	-13
Plant 2	MW-22-156	1,4-Dioxane	09/22 - 11/24	H-46	8 / 8	47 - 144	96	91	35.4	NST	--	0.274	6
Plant 2	MW-22-157	1,4-Dioxane	09/22 - 11/24	H-47	8 / 8	3 - 123	49.4	42.5	48.2	UP	--	0.072	13
Plant 2	P2-MW-04	1,4-Dioxane	08/11 - 05/24	H-48	15 / 16	11 - 62	39.6	40	15.7	DWN	--	0.009	-53
Plant 2	PW-14-02	1,4-Dioxane	09/14 - 11/24	H-49	31 / 31	5 - 580	144	95	151	DWN	--	<0.001	-308
Plant 2	TW-14-02	1,4-Dioxane	06/15 - 11/24	H-50	31 / 38	3 - 3500	962	239	1200	DWN	--	<0.001	-383
Plant 3	CH-14-RO	Chromium III (trivalent)	08/11 - 05/24	H-51	17 / 17	7.2 - 27.1	15.1	15.1	6.4	DWN	--	<0.001	-111
Plant 3	CH-14-RO	Chromium VI (hexavalent)	08/11 - 05/24	H-52	17 / 17	6.7 - 28.4	15.7	14.6	7.1	DWN	--	<0.001	-112
Plant 3	CH-14-RO	Perfluorohexanesulfonic acid (PFHxS)	12/16 - 05/24	H-53	13 / 13	1000 - 2520	1770	1680	442	DWN	--	0.014	-37
Plant 3	CH-14-RO	Perfluorooctane sulfonic acid (PFOS)	12/16 - 05/24	H-54	13 / 13	7100 - 13000	11000	11200	1680	DWN	--	0.022	-34
Plant 3	CH-14-RO	Perfluorooctanoic acid (PFOA)	12/16 - 05/24	H-55	13 / 13	69.2 - 190	112	116	30.9	NST	--	0.524	0
Plant 3	MW-02-04(3)	Arsenic	07/03 - 05/24	H-56	15 / 15	0.007 - 0.083	0.03	0.021	0.024	UP	--	<0.001	79
Plant 3	MW-02-04(3)	Arsenic (dissolved)	10/03 - 05/24	H-57	8 / 8	0.003 - 0.02	0.011	0.0115	0.0059	UP	--	0.016	18
Plant 3	MW-12-21	1,4-Dioxane	02/13 - 11/24	H-58	29 / 30	118 - 510	267	230	121	DWN	--	<0.001	-258
Plant 3	MW-13-22	1,4-Dioxane	03/13 - 11/24	H-59	37 / 37	45 - 270	150	157	53.4	DWN	--	0.014	-169
Plant 3	MW-13-29	1,4-Dioxane	04/13 - 11/24	H-60	23 / 23	6 - 130	24	18	24.8	DWN	--	<0.001	-165
Plant 3	MW-13-32	Nickel	08/13 - 05/24	H-61	22 / 22	0.043 - 4.7	1.1	0.776	1.2	DWN	--	0.040	-63
Plant 3	MW-13-34	1,4-Dioxane	08/13 - 11/24	H-62	35 / 35	17 - 127	79.1	81	23.1	UP	--	<0.001	338
Plant 3	MW-13-48	1,4-Dioxane	12/13 - 11/24	H-63	28 / 28	24 - 380	141	128	87.3	DWN	--	0.038	-91
Plant 3	MW-18-103	Perfluorohexanesulfonic acid (PFHxS)	03/19 - 05/24	H-64	19 / 19	16.8 - 190	55.2	48.7	40.9	UP	--	<0.001	107
Plant 3	MW-18-88	Perfluorooctane sulfonic acid (PFOS)	12/18 - 11/24	H-65	21 / 21	46.1 - 860	207	161	170	UP	--	0.002	99
Plant 3	MW-18-88	Perfluorooctanoic acid (PFOA)	12/18 - 11/24	H-66	21 / 21	3.1 - 17	7	6.8	3.1	UP	--	0.002	98
Plant 3	MW-18-89	Perfluorooctane sulfonic acid (PFOS)	12/18 - 05/24	H-67	19 / 19	74 - 289	147	150	44.3	NST	--	0.102	-37
Plant 3	MW-18-89	Perfluorooctanoic acid (PFOA)	12/18 - 05/24	H-68	19 / 19	10 - 21.4	13.5	13	2.8	DWN	--	0.085	-40
Plant 3	MW-18-90	Perfluorooctane sulfonic acid (PFOS)	12/18 - 05/24	H-69	19 / 19	230 - 1200	948	965	191	NST	--	0.287	-17
Plant 3	MW-18-90	Perfluorooctanoic acid (PFOA)	12/18 - 05/24	H-70	19 / 19	8.1 - 21.3	16.3	16	3	DWN	--	0.039	-51
Plant 3	MW-18-91	Perfluorooctane sulfonic acid (PFOS)	12/18 - 05/24	H-71	19 / 19	34 - 89	55.1	52	13.4	DWN	--	0.002	-84

Plant ID	Well ID	Analyte	Date Range	Figure	FOD	Detected Results Summary [1]				Mann-Kendall Test [2]			
						Range	Mean	Median	SD	Result[4]	MK Result Note	P-Value	S Value
Plant 3	MW-18-95	Perfluorooctane sulfonic acid (PFOS)	03/19 - 11/24	H-72	21 / 21	27 - 115	48.5	42	22.4	DWN	--	0.065	-51
Plant 3	MW-18-98	Perfluorooctane sulfonic acid (PFOS)	03/19 - 11/24	H-73	22 / 22	33 - 440	143	109.5	107	NST	--	0.191	32
Plant 3	MW-18-99	Perfluorooctane sulfonic acid (PFOS)	03/19 - 11/24	H-74	22 / 22	46.7 - 170	86.8	76.5	33.5	NST	--	0.191	-32
Plant 3	TW-15-11	1,4-Dioxane	06/15 - 11/24	H-75	23 / 23	5 - 250	99.9	51	88.7	DWN	--	0.004	-100
Plant 3	UNK-15	Perfluorooctane sulfonic acid (PFOS)	06/19 - 11/24	H-76	19 / 19	810 - 1530	1170	1170	181	NST	--	0.199	-25
Plant 3	UNK-15	Perfluorooctanoic acid (PFOA)	06/19 - 11/24	H-77	19 / 19	21 - 49.1	33.3	32	7.6	DWN	--	<0.001	-110
Plant 6	MW-02-02(6)	1,4-Dioxane	10/11 - 05/24	H-78	10 / 10	11 - 30	20.7	21	4.8	NST	--	0.216	10
Plant 6	MW-03-06	Vinyl chloride	10/11 - 05/24	H-79	15 / 17	4 - 12	9.9	11	2.6	NST	--	0.416	6
Plant 6	MW-12-12	Perfluorononanoic acid (PFNA)	06/19 - 11/24	H-80	20 / 20	3.6 - 12.6	7.9	7.8	2.4	DWN	--	<0.001	-117
Plant 6	MW-12-12	Perfluorooctane sulfonic acid (PFOS)	06/19 - 11/24	H-81	20 / 20	19 - 67.5	42.6	43	12.9	DWN	--	<0.001	-110
Plant 6	MW-12-12	Perfluorooctanoic acid (PFOA)	06/19 - 11/24	H-82	20 / 20	52 - 150	88.1	85.5	21.5	UP	--	0.092	42
Plant 6	MW-12-13	Perfluorooctanoic acid (PFOA)	06/19 - 11/24	H-83	17 / 20	1.1 - 14	4.1	2.3	3.8	UP	--	<0.001	154
Plant 6	MW-13-36R	Vanadium	12/13 - 05/24	H-84	18 / 20	0.005 - 0.027	0.011	0.009	0.0052	NST	--	0.148	-33
Plant 6	MW-13-36R	Perfluorononanoic acid (PFNA)	06/19 - 11/24	H-85	20 / 20	11 - 16.5	13.4	13.35	1.5	NST	--	0.500	1
Plant 6	MW-13-36R	Perfluorooctane sulfonic acid (PFOS)	06/19 - 11/24	H-86	20 / 20	35 - 56.7	45.5	45.75	5.3	DWN	--	0.003	-84
Plant 6	MW-13-36R	Perfluorooctanoic acid (PFOA)	06/19 - 11/24	H-87	20 / 20	56 - 81.1	67.5	65.95	7.3	NST	--	0.410	8
Plant 6	MW-14-67	Perfluorooctanoic acid (PFOA)	06/19 - 05/24	H-88	18 / 18	10.3 - 27.1	15.7	14	5.1	UP	--	0.056	43
Plant 6	MW-14-70	Perfluorooctanoic acid (PFOA)	05/18 - 05/24	H-89	19 / 19	6.6 - 51.9	27.7	32	12.9	NST	--	0.131	-33
Plant 6	MW-20-131	Perfluorooctanoic acid (PFOA)	02/21 - 11/24	H-90	10 / 10	27 - 45	36.2	37.65	5.3	NST	--	0.271	-8
Plant 6	MW-20-131	Vinyl chloride	12/20 - 08/24	H-91	9 / 9	2 - 5	2.9	3	1.1	DWN	--	0.075	-15
Plant 6	MW-20-132	Perfluorononanoic acid (PFNA)	02/21 - 11/24	H-92	10 / 10	2.1 - 8.4	6.3	7.2	2.1	NST	--	0.431	-3
Plant 6	MW-20-132	Perfluorooctane sulfonic acid (PFOS)	02/21 - 11/24	H-93	10 / 10	6.9 - 20.2	15.6	17.5	4.6	DWN	--	0.045	-20
Plant 6	MW-20-132	Perfluorooctanoic acid (PFOA)	02/21 - 11/24	H-94	10 / 10	13 - 50	36.1	40	11.4	NST	--	0.190	-11
Plant 6	MW-20-132	Vinyl chloride	12/20 - 08/24	H-95	8 / 9	1 - 3	2.3	2.5	0.89	NST	--	0.238	-8
Plant 6	MW-21-133	Perfluorooctanoic acid (PFOA)	03/21 - 11/24	H-96	10 / 10	16 - 110	64.1	58.95	32.2	NST	--	0.332	6
Plant 6	MW-21-134	Perfluorooctanoic acid (PFOA)	03/21 - 11/24	H-97	10 / 10	22.6 - 55	36.4	34.8	11.2	NST	--	0.146	13
Plant 6	MW-21-135	Perfluorooctanoic acid (PFOA)	03/21 - 05/24	H-98	9 / 9	38 - 63	47.5	47	8	NST	--	0.381	4
Plant 6	MW-22-144	Perfluorooctanoic acid (PFOA)	08/22 - 11/24	H-99	9 / 9	5 - 17	10.8	11	4.1	UP	--	0.090	14
Plant 6	MW-22-145	Perfluorooctanoic acid (PFOA)	08/22 - 11/24	H-100	9 / 9	11 - 37	25.1	23	8.4	NST	--	0.209	9
Plant 6	MW-22-151	Perfluorooctanoic acid (PFOA)	08/22 - 11/24	H-101	9 / 9	6.9 - 15	8.8	8.1	2.4	NST	--	0.306	6
Plant 6	MWBP-10-UST5-6	Arsenic	10/11 - 05/24	H-102	18 / 21	0.003 - 0.051	0.015	0.012	0.014	UP	--	<0.001	117
Plant 6	MWBP-11-UST1-4	Arsenic	11/11 - 05/24	H-103	15 / 15	0.006 - 0.032	0.019	0.019	0.0079	DWN	--	<0.001	-68
Plant 6	MWBP-11-UST1-4	Arsenic (dissolved)	11/11 - 05/24	H-104	8 / 8	0.006 - 0.034	0.022	0.024	0.009	DWN	--	0.054	-14
Plant 6	MWBP-12-UST1-4	Arsenic	10/11 - 05/24	H-105	15 / 15	0.003 - 0.018	0.012	0.012	0.0051	NST	--	0.116	-25
Plant 6	MWBP-12-UST1-4	Vanadium	10/11 - 05/24	H-106	12 / 15	0.003 - 0.011	0.0082	0.009	0.0022	NST	--	0.343	-9
Plant 6	MWBP-12-UST1-4	Benzene	10/11 - 05/24	H-107	10 / 16	2 - 284	82.2	57.5	90.8	NST	--	0.165	22
Plant 6	P6-SB-07	Perfluorononanoic acid (PFNA)	06/19 - 05/24	H-108	18 / 18	74.6 - 220	136	135	48.3	NST	--	0.410	7
Plant 6	P6-SB-07	Perfluorooctane sulfonic acid (PFOS)	06/19 - 05/24	H-109	18 / 18	30 - 126	72	64.1	27.6	NST	--	0.202	-23
Plant 6	P6-SB-07	Perfluorooctanoic acid (PFOA)	06/19 - 05/24	H-110	18 / 18	610 - 1930	1220	1250	409	NST	--	0.500	-1

Abbreviations:

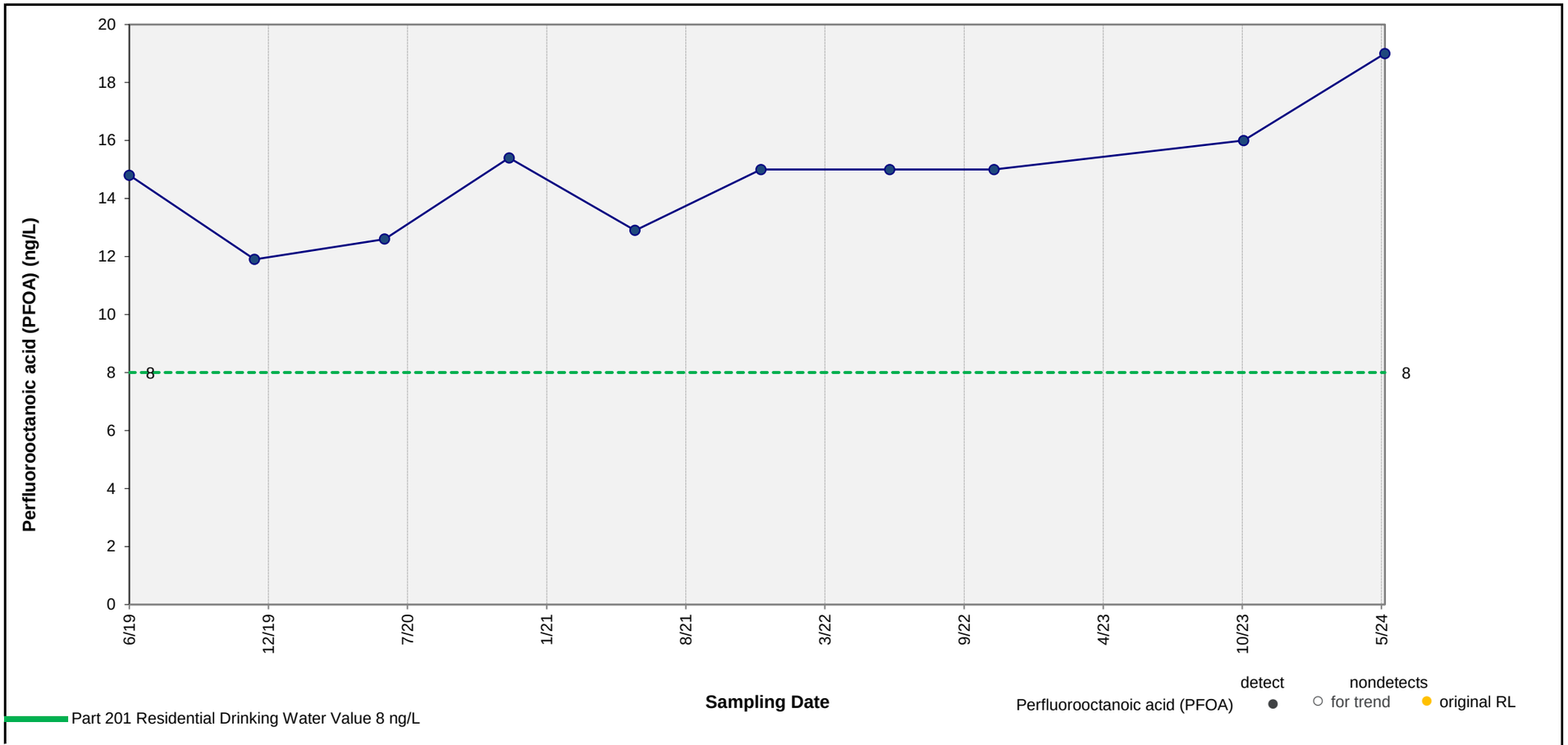
-- = not applicable
FOD = frequency of detection (# detects / # samples)
mean = arithmetic mean
SD = standard deviation
MK = Mann-Kendall
NST = no significant trend
DWN = downward trend
UP = upward trend

Notes:

1. All analytical results for VOCs are in µg/L, PFAS are in ng/L, and metals are in mg/L.
2. Trend results are presented for well-analyte pairs sampled in 2024 when at least 7 samples, and 50% detected values, and 25% criteria exceedances in the last six samples are available.
   Perched wells are compared to the Groundwater Surface Water Interface Criteria (GSI) and Residential Drinking Water Criteria (RDW), all other wells are compared to the RDW.
3. Non-detects were assigned a common value less than the minimum detected value, equal to half the minimum reporting limit (RL) in the dataset (USEPA, 2009).
   If half the minimum RL was greater than the minimum detected value, then half the minimum detect was assigned.
4. Statistically significant trend defined as having p-value ≤ 0.1, or 90% confidence.
5a. MK Trend results for datasets with fewer than 8 samples may not be reliable and should be treated with caution.

Reference:

USEPA. 2009. Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities. Unified Guidance. EPA/530/R-09/007, 2009.



Part 201 Groundwater Surface Water Interface criteria value of 170 ng/L is off-scale

Results of Mann-Kendall Test for Trend: **INCREASING TREND**

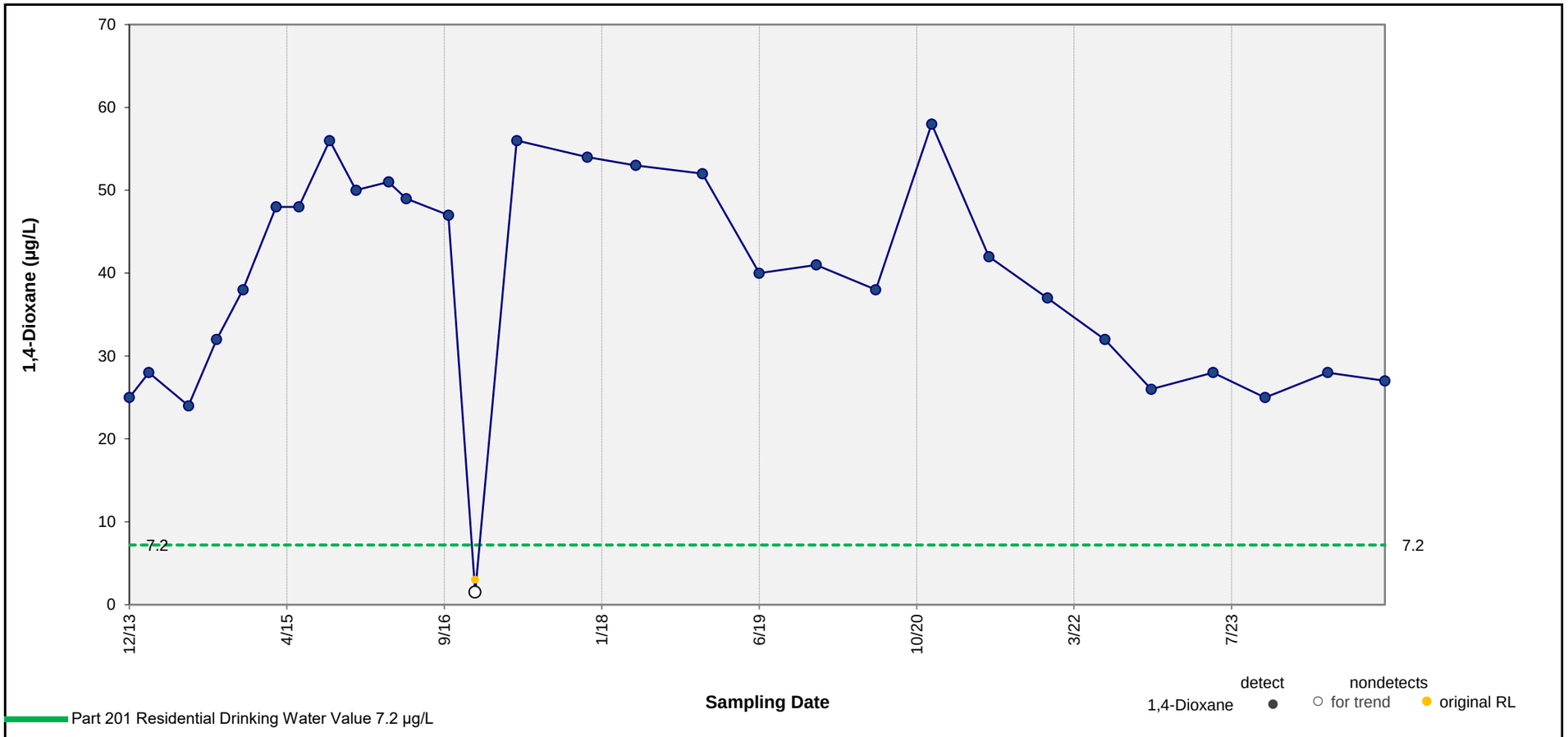
p value = 0.007 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Perfluorooctanoic acid (PFOA) in Well MW-12-09

RACER Lansing

Figure H-1



Results of Mann-Kendall Test for Trend: **No Significant Trend**

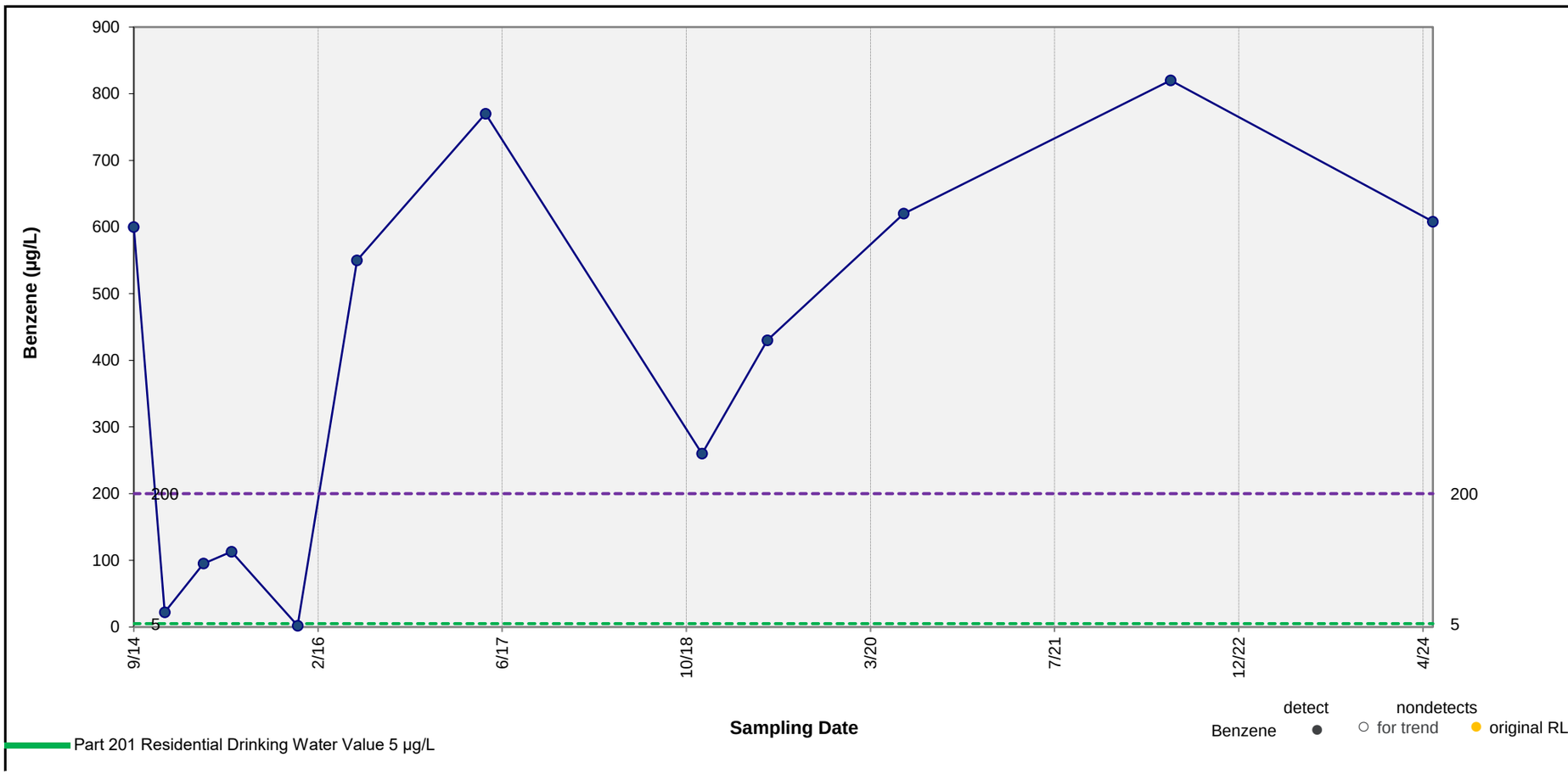
p value = 0.189 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – 1,4-Dioxane in Well MW-13-45

RACER Lansing

Figure H-2



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

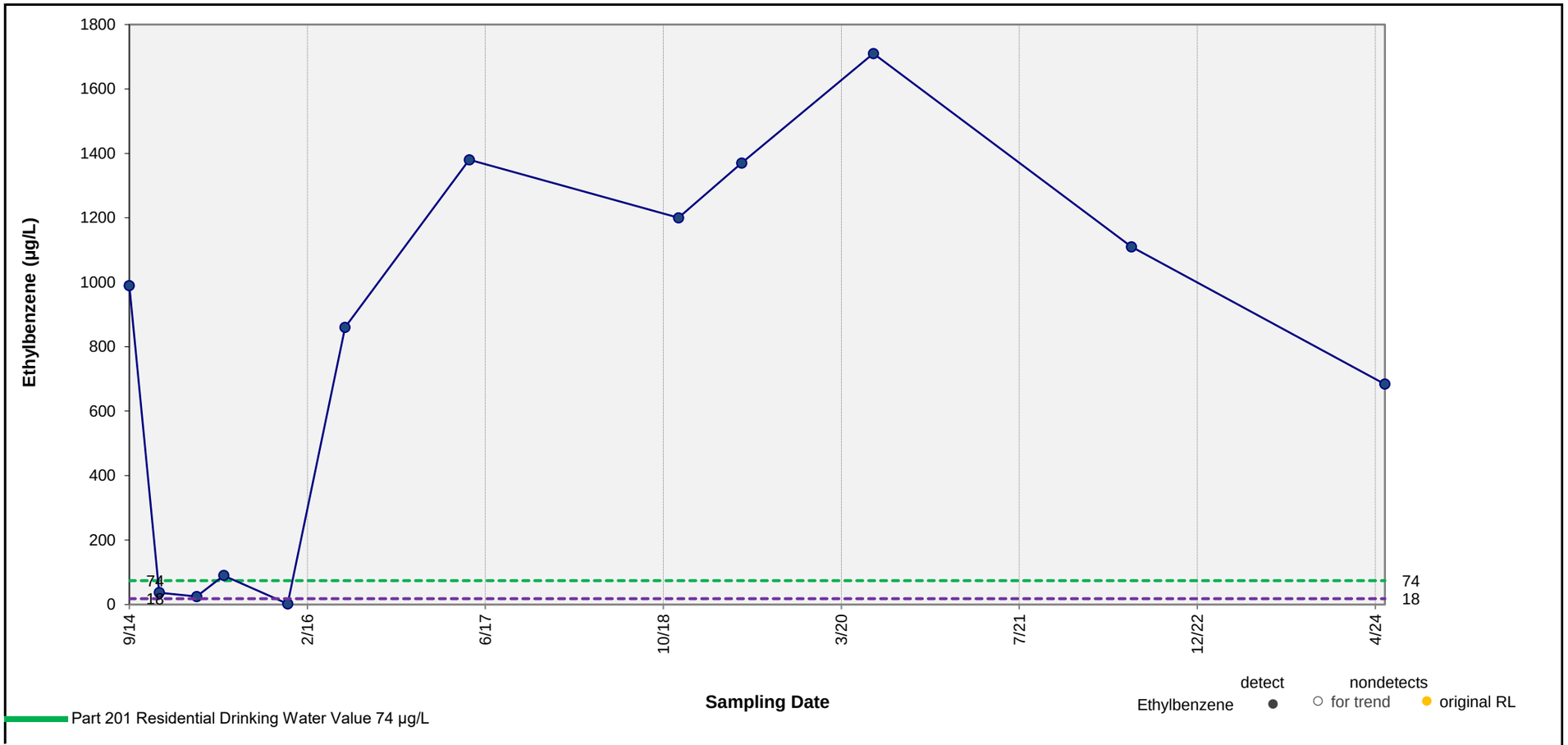
p value = 0.023 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Benzene in Well MW-14-54

RACER Lansing

Figure H-3



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

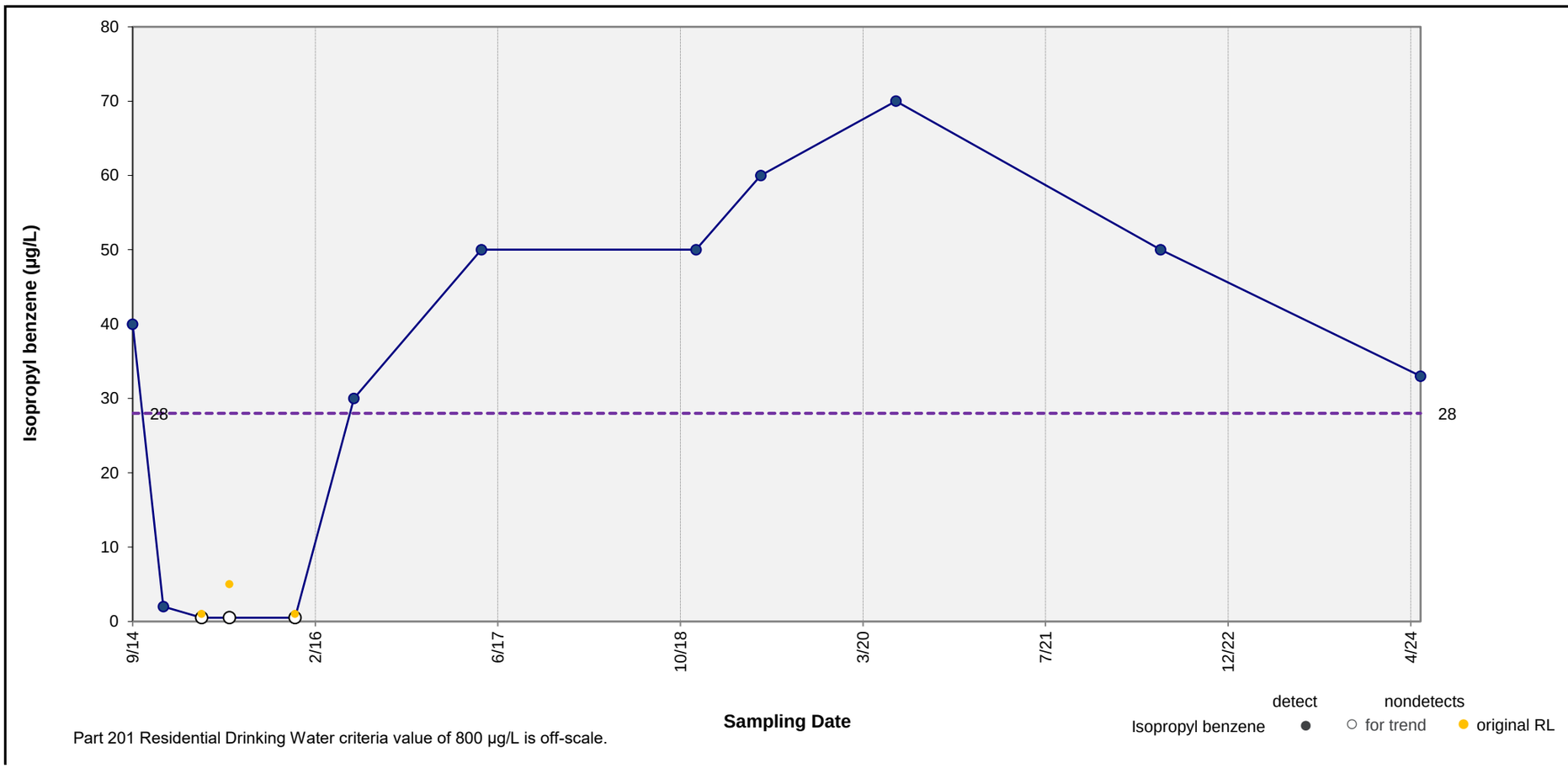
p value = 0.075 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Ethylbenzene in Well MW-14-54

RACER Lansing

Figure H-4



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

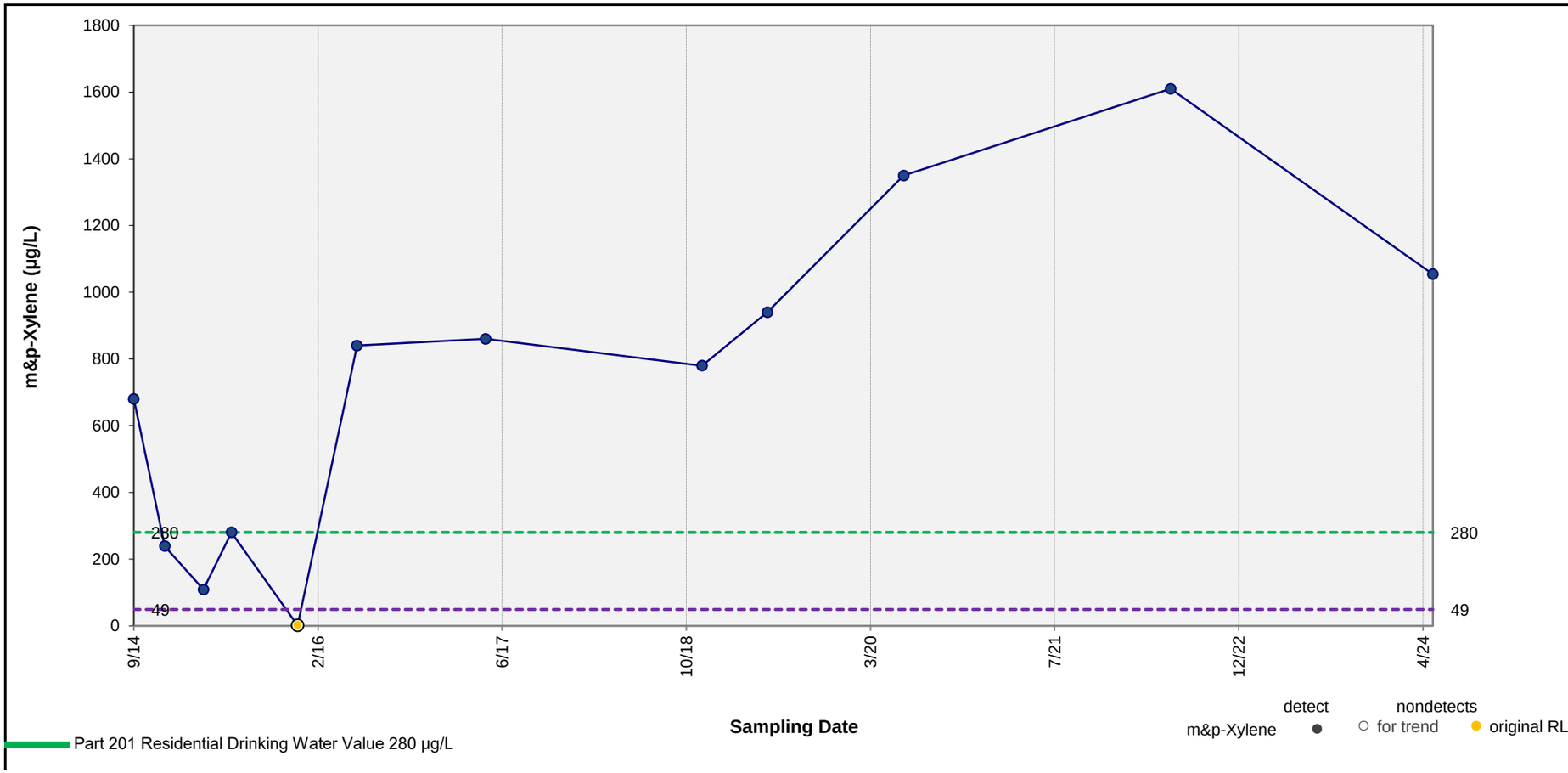
p value = 0.030 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Isopropyl benzene in Well MW-14-54

RACER Lansing

Figure H-5



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

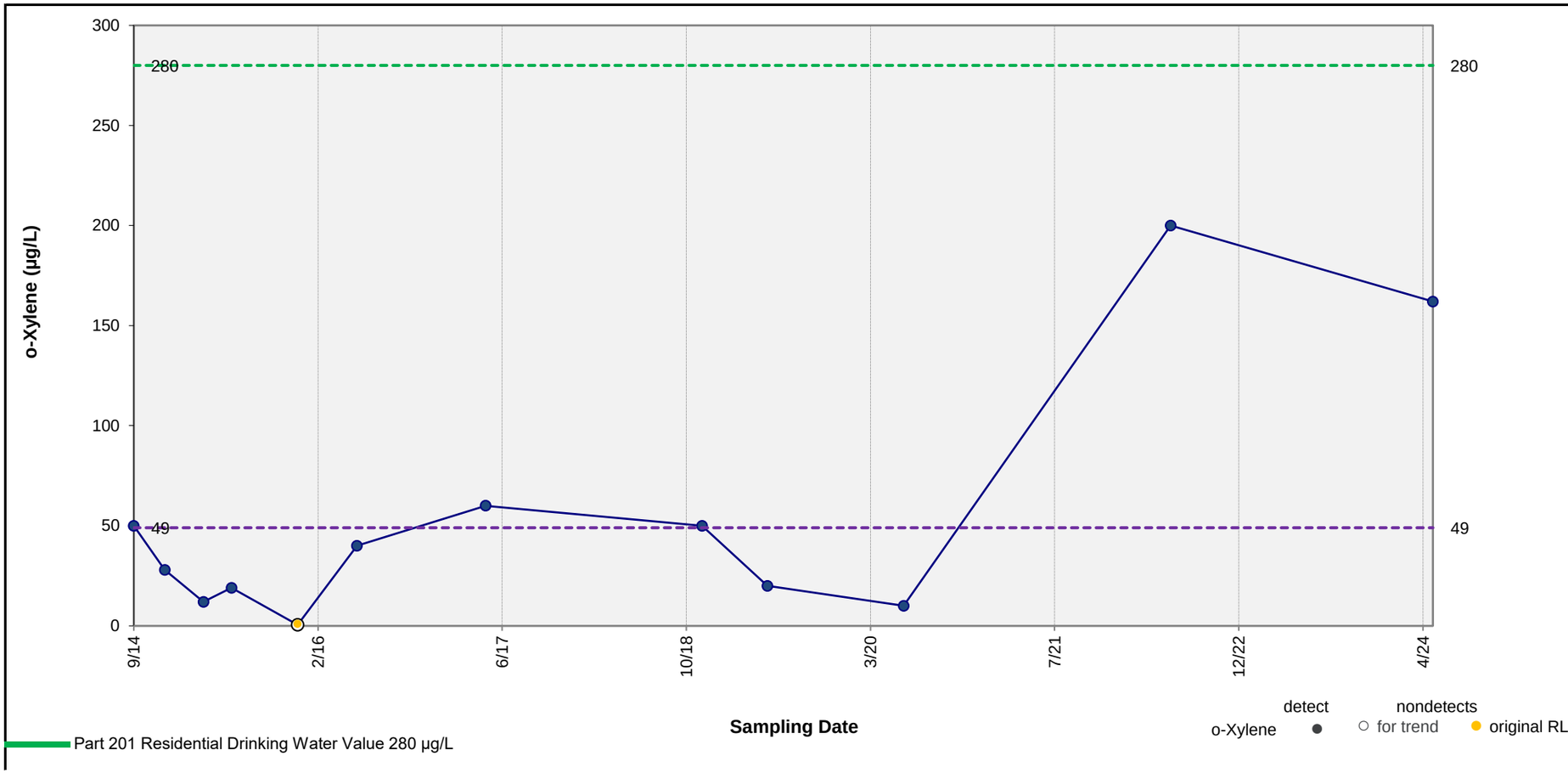
p value = 0.002 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – m&p-Xylene in Well MW-14-54

RACER Lansing

Figure H-6



Results of Mann-Kendall Test for Trend: **No Significant Trend**

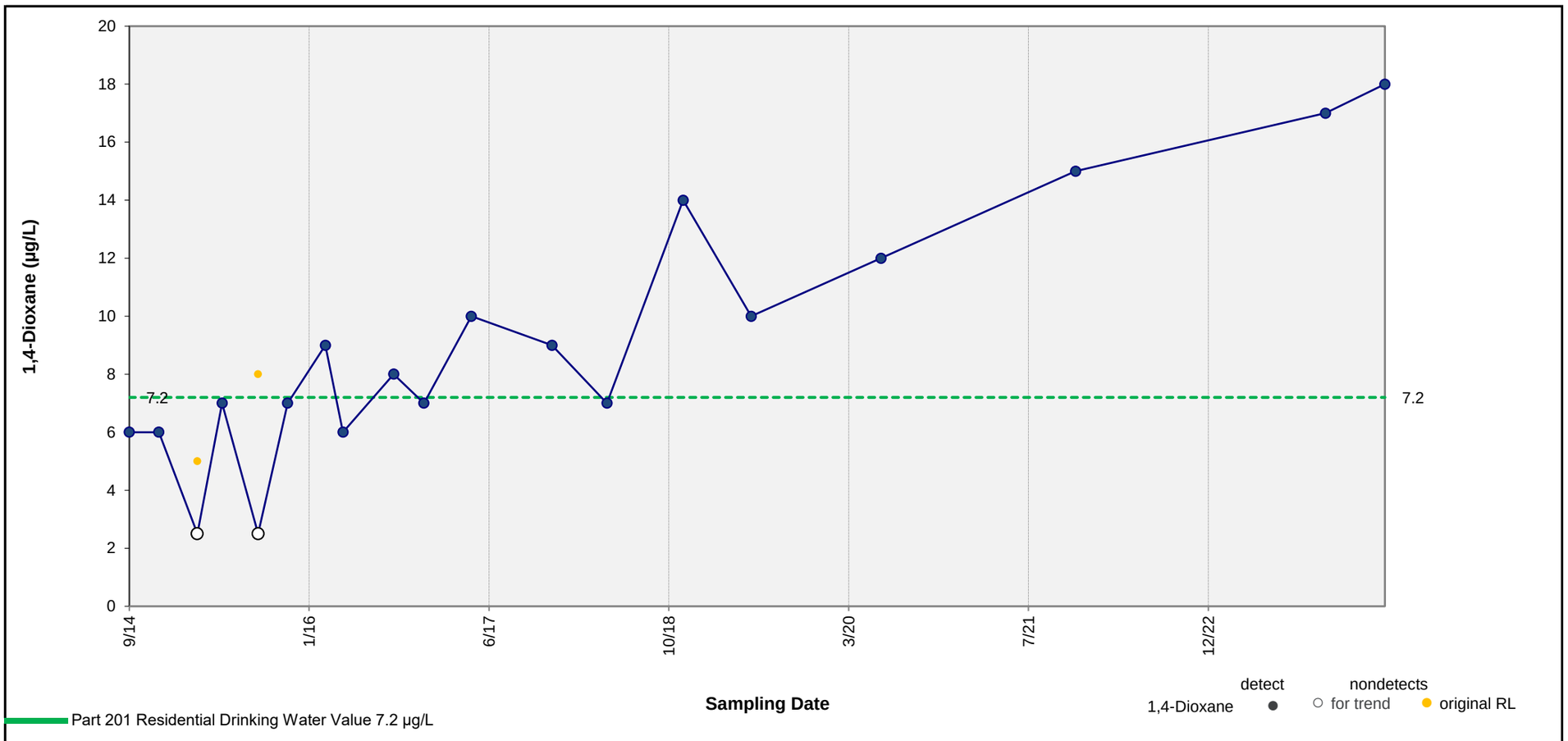
p value = 0.168 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – o-Xylene in Well MW-14-54

RACER Lansing

Figure H-7



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

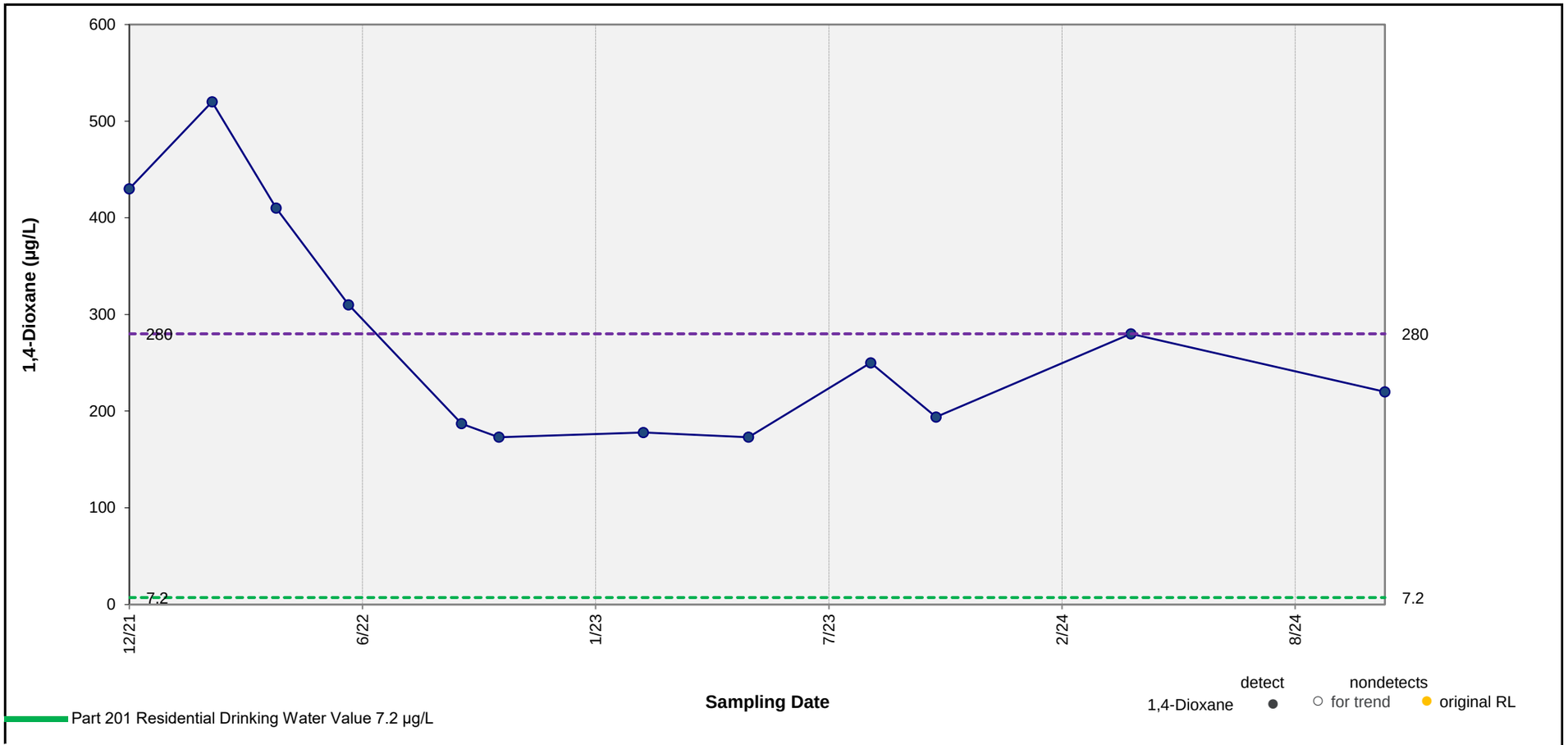
p value = <0.001 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – 1,4-Dioxane in Well MW-14-56

RACER Lansing

Figure H-8



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

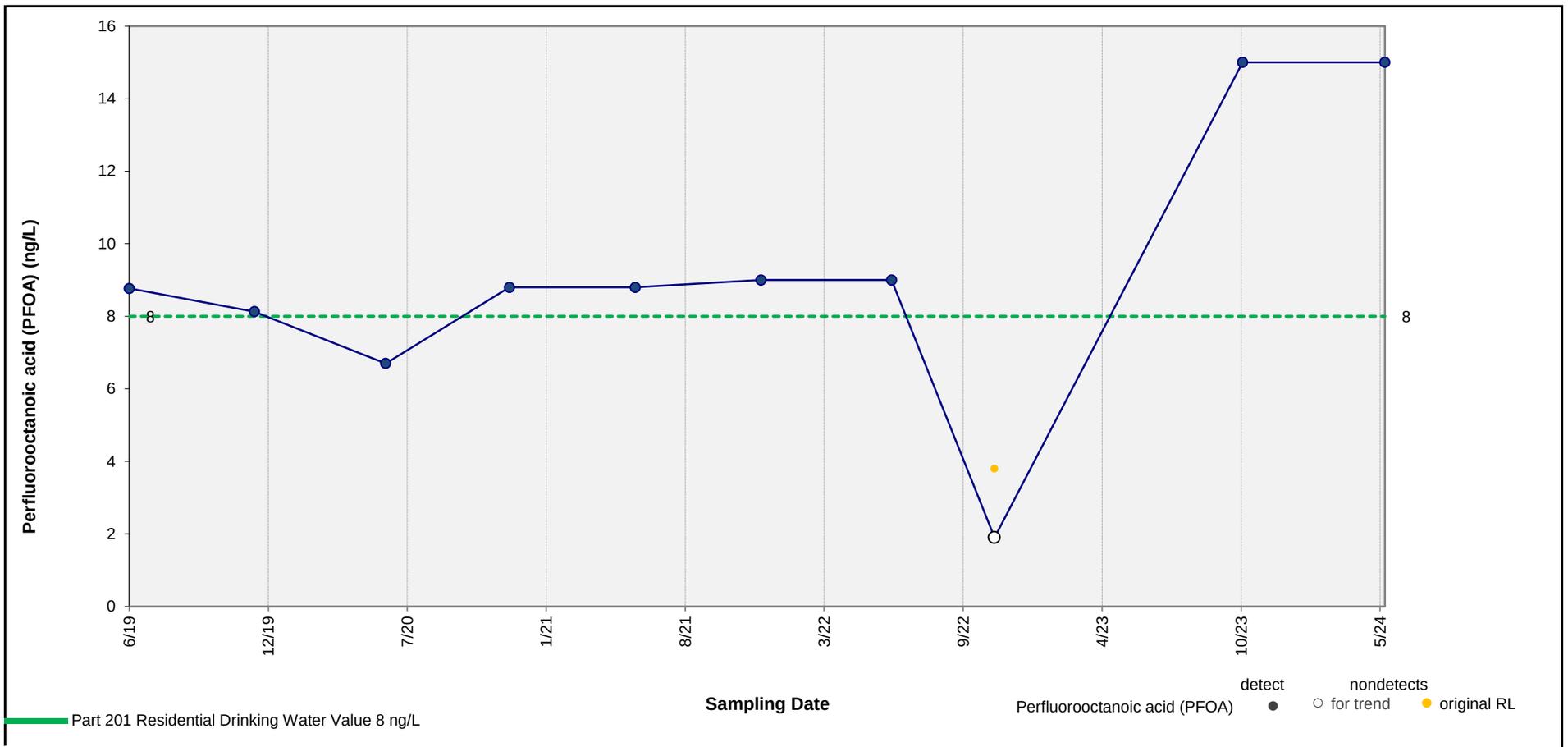
p value = 0.065 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – 1,4-Dioxane in Well MW-14-58R

RACER Lansing

Figure H-9



Part 201 Groundwater Surface Water Interface criteria value of 170 ng/L is off-scale

Results of Mann-Kendall Test for Trend: **INCREASING TREND**

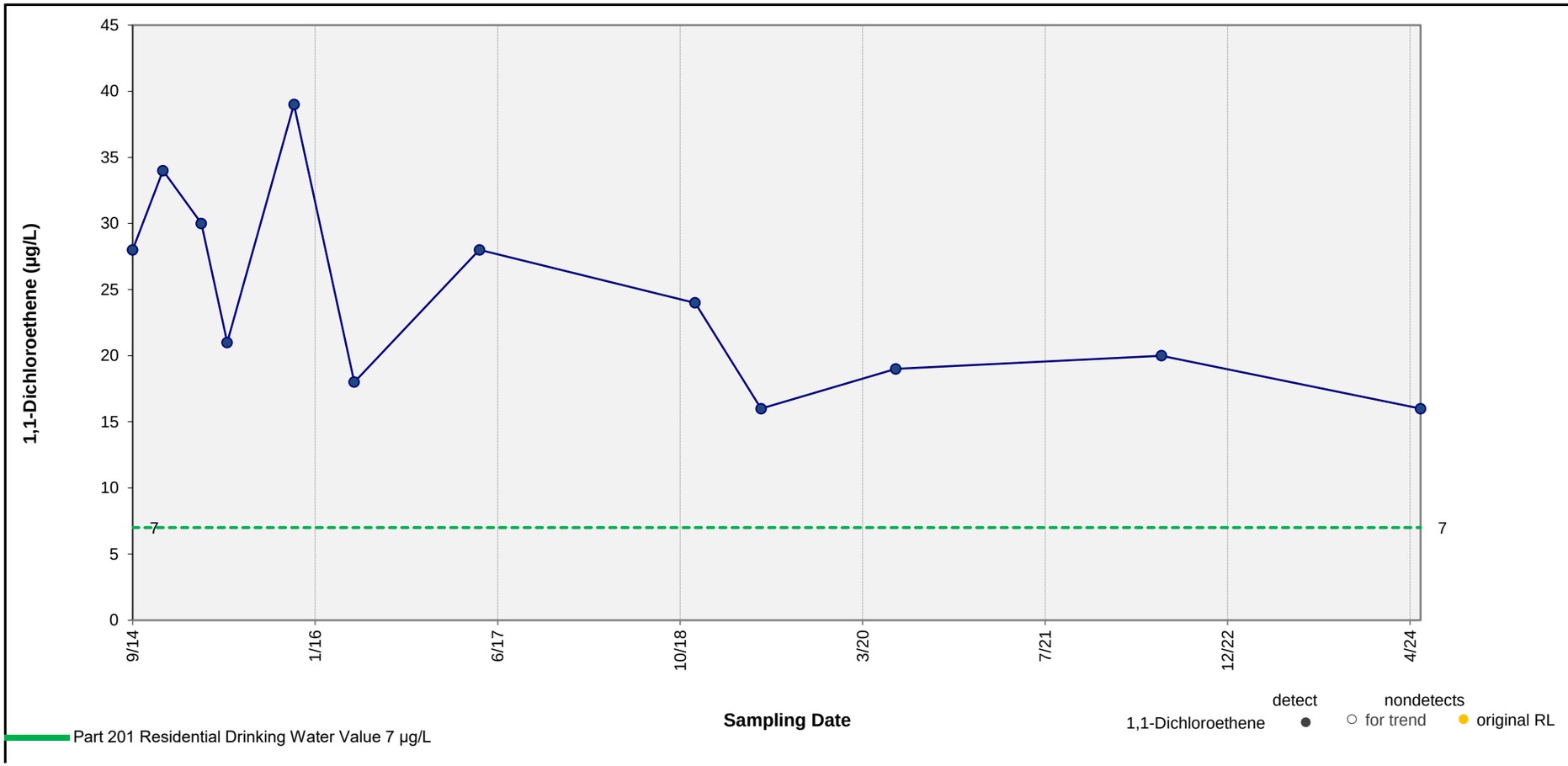
p value = 0.030 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Perfluorooctanoic acid (PFOA) in Well MW-14-59

RACER Lansing

Figure H-10



Part 201 Groundwater Surface Water Interface criteria value of 130 µg/L is off-scale

Results of Mann-Kendall Test for Trend: **DECREASING TREND**

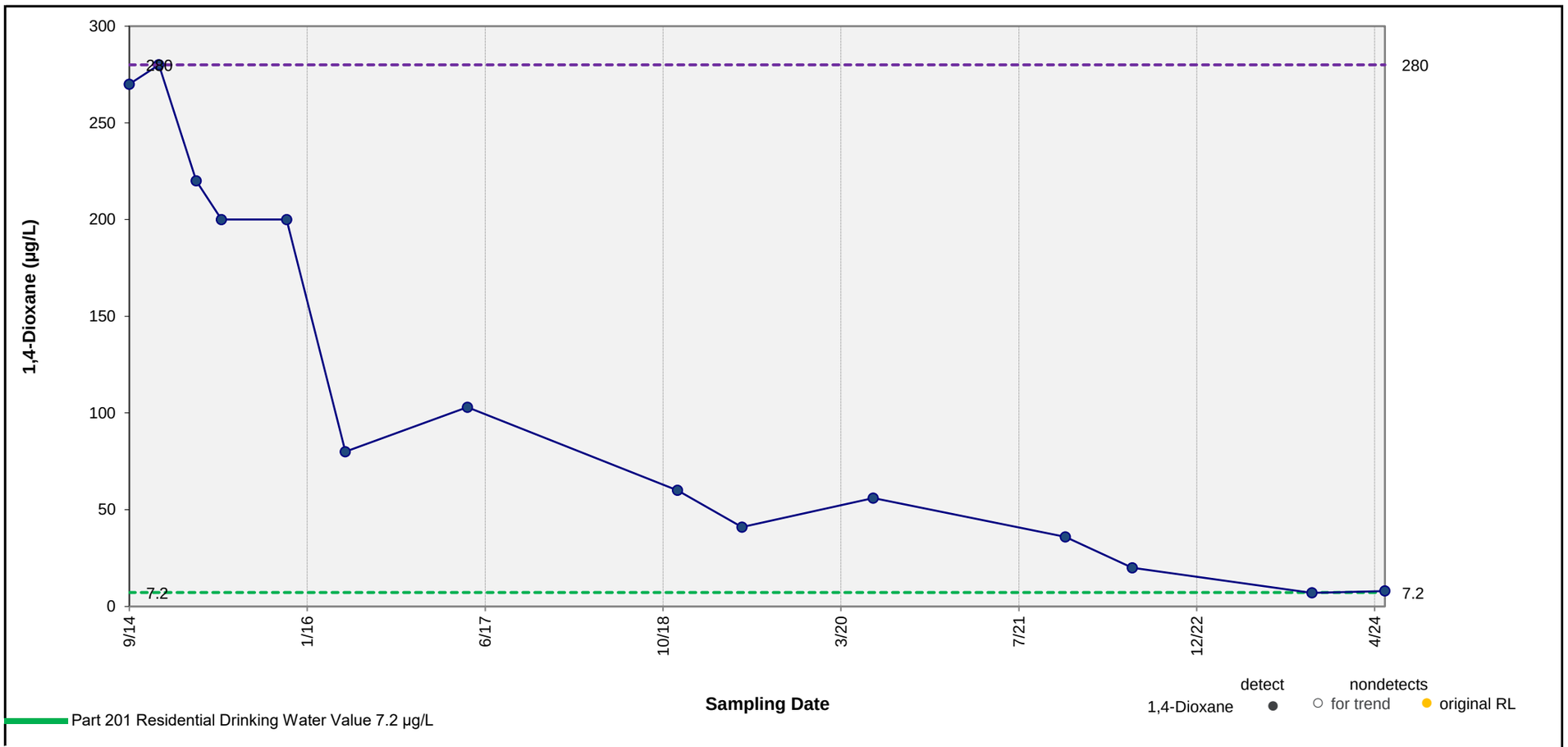
p value = 0.011 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – 1,1-Dichloroethene in Well MW-14-59

RACER Lansing

Figure H-11



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

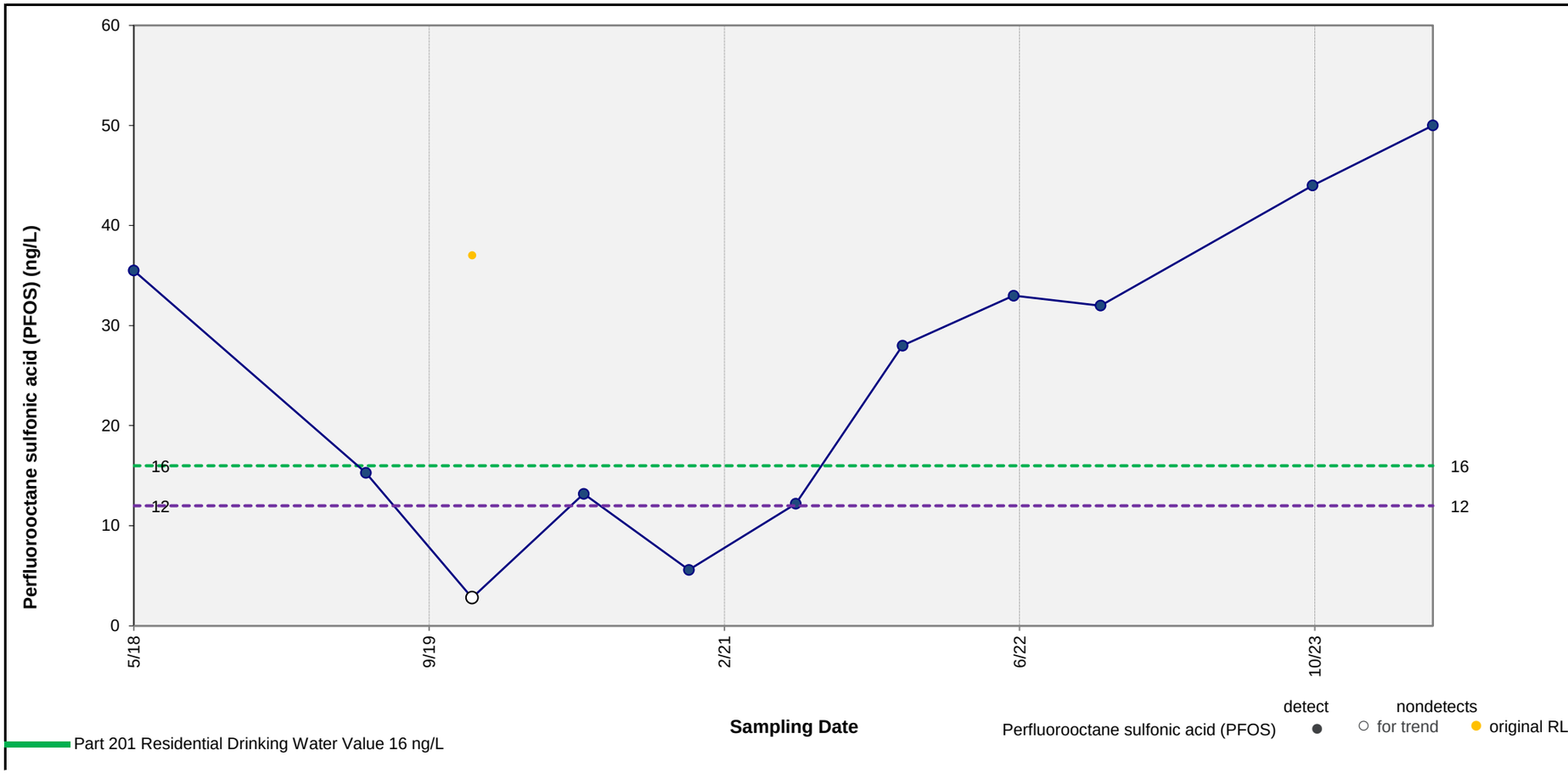
p value = <0.001 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – 1,4-Dioxane in Well MW-14-59

RACER Lansing

Figure H-12



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

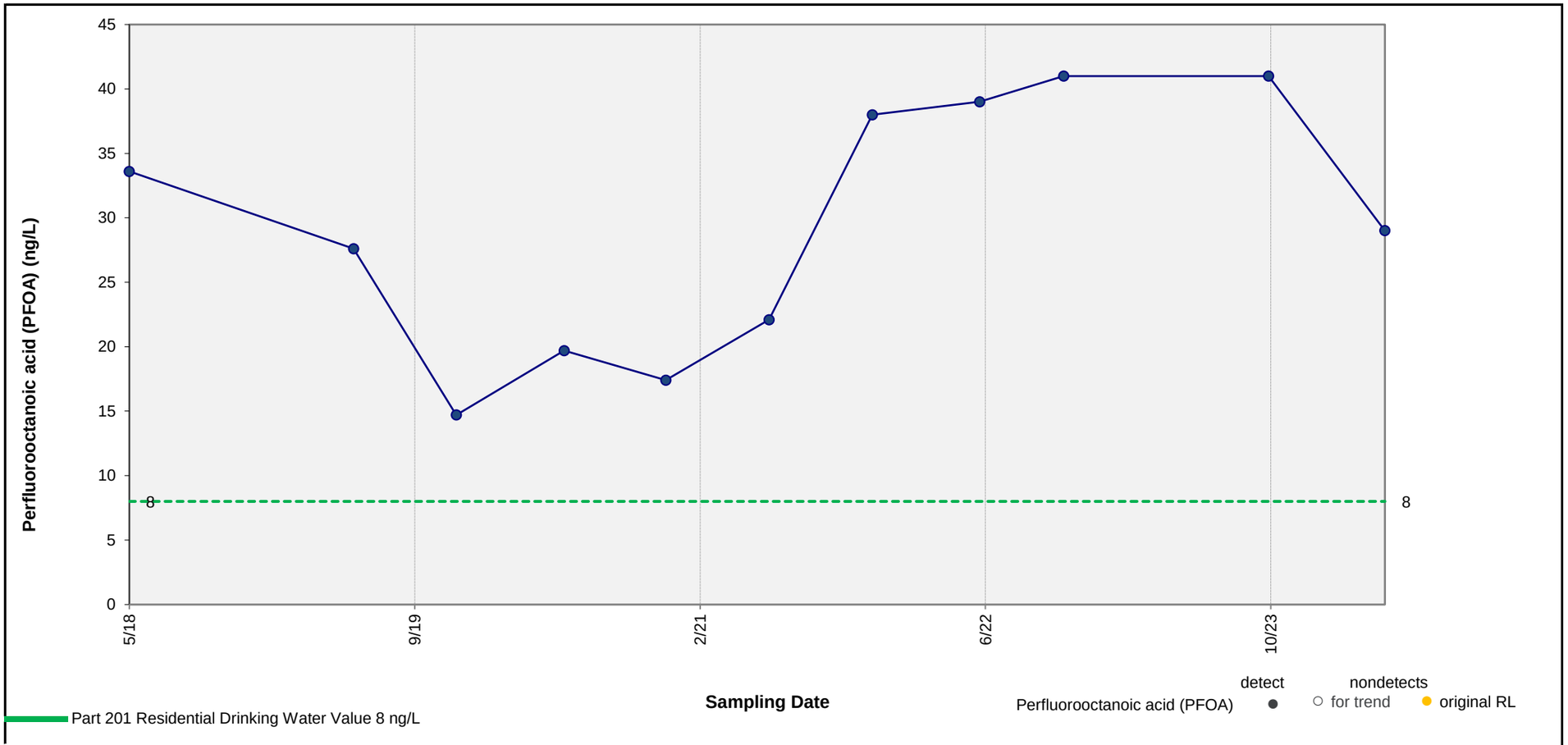
p value = 0.031 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Perfluorooctane sulfonic acid (PFOS) in Well MW-14-60

RACER Lansing

Figure H-13



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

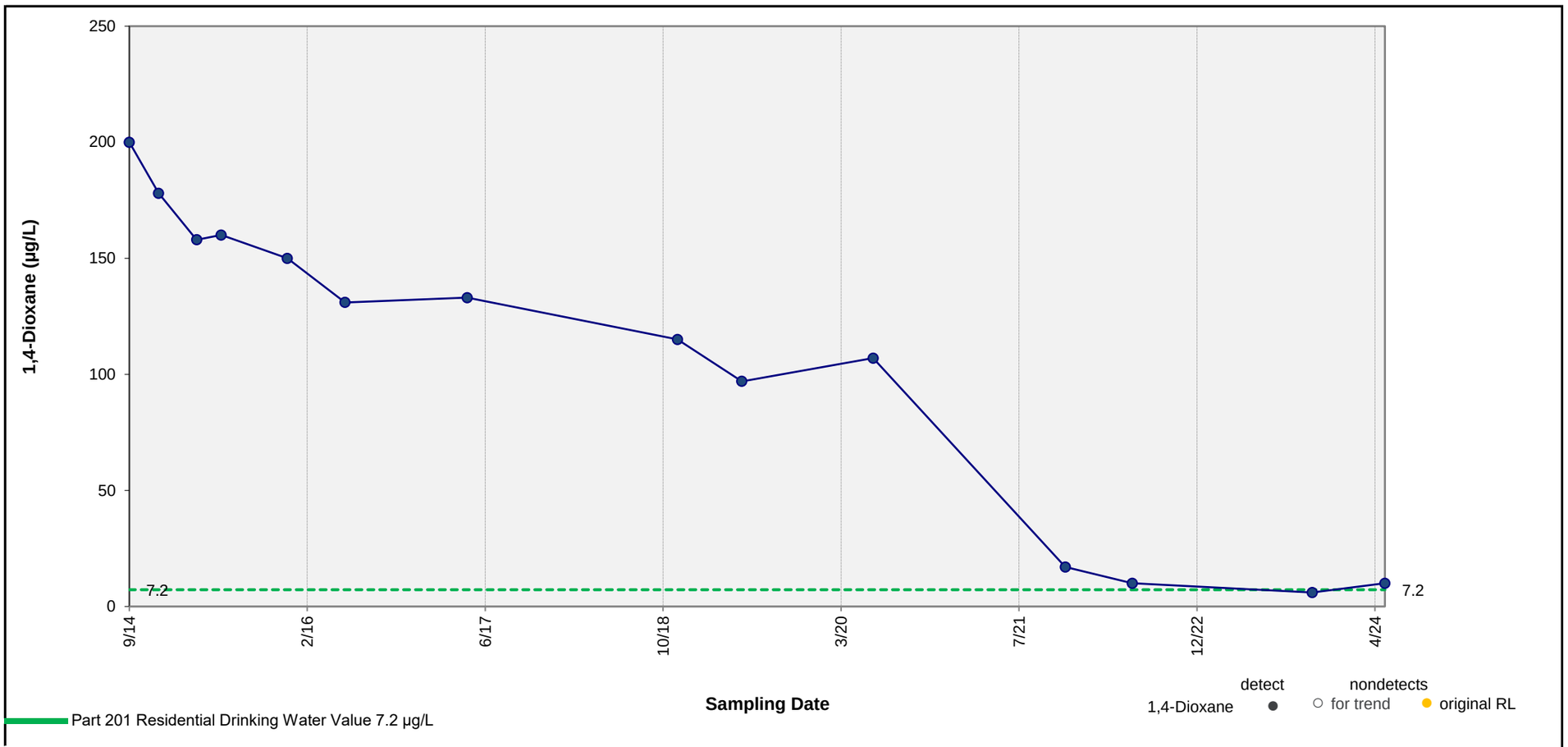
p value = 0.036 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Perfluorooctanoic acid (PFOA) in Well MW-14-60

RACER Lansing

Figure H-14



Part 201 Groundwater Surface Water Interface criteria value of 280 µg/L is off-scale

Results of Mann-Kendall Test for Trend: **DECREASING TREND**

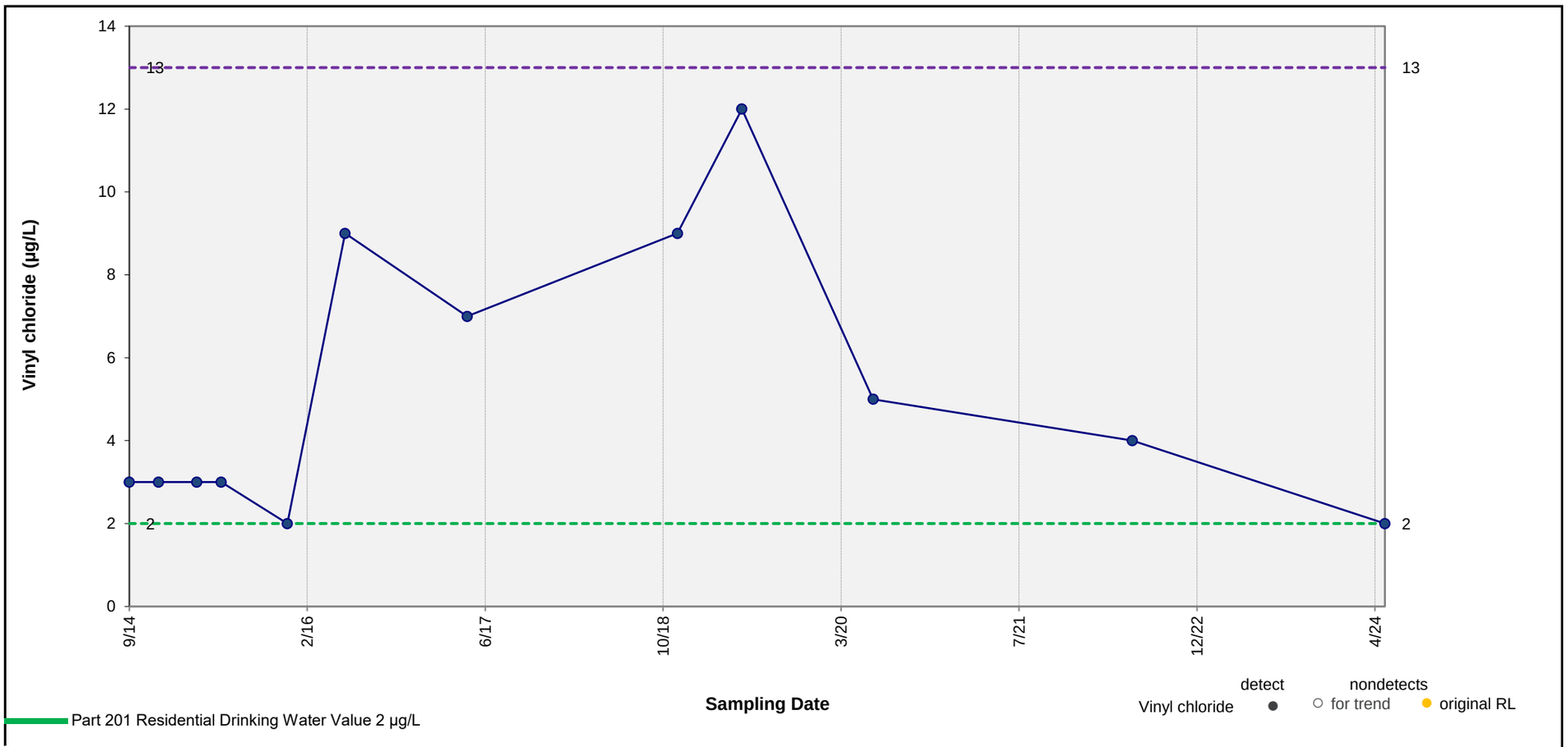
p value = <0.001 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – 1,4-Dioxane in Well MW-14-60

RACER Lansing

Figure H-15



Results of Mann-Kendall Test for Trend: **No Significant Trend**

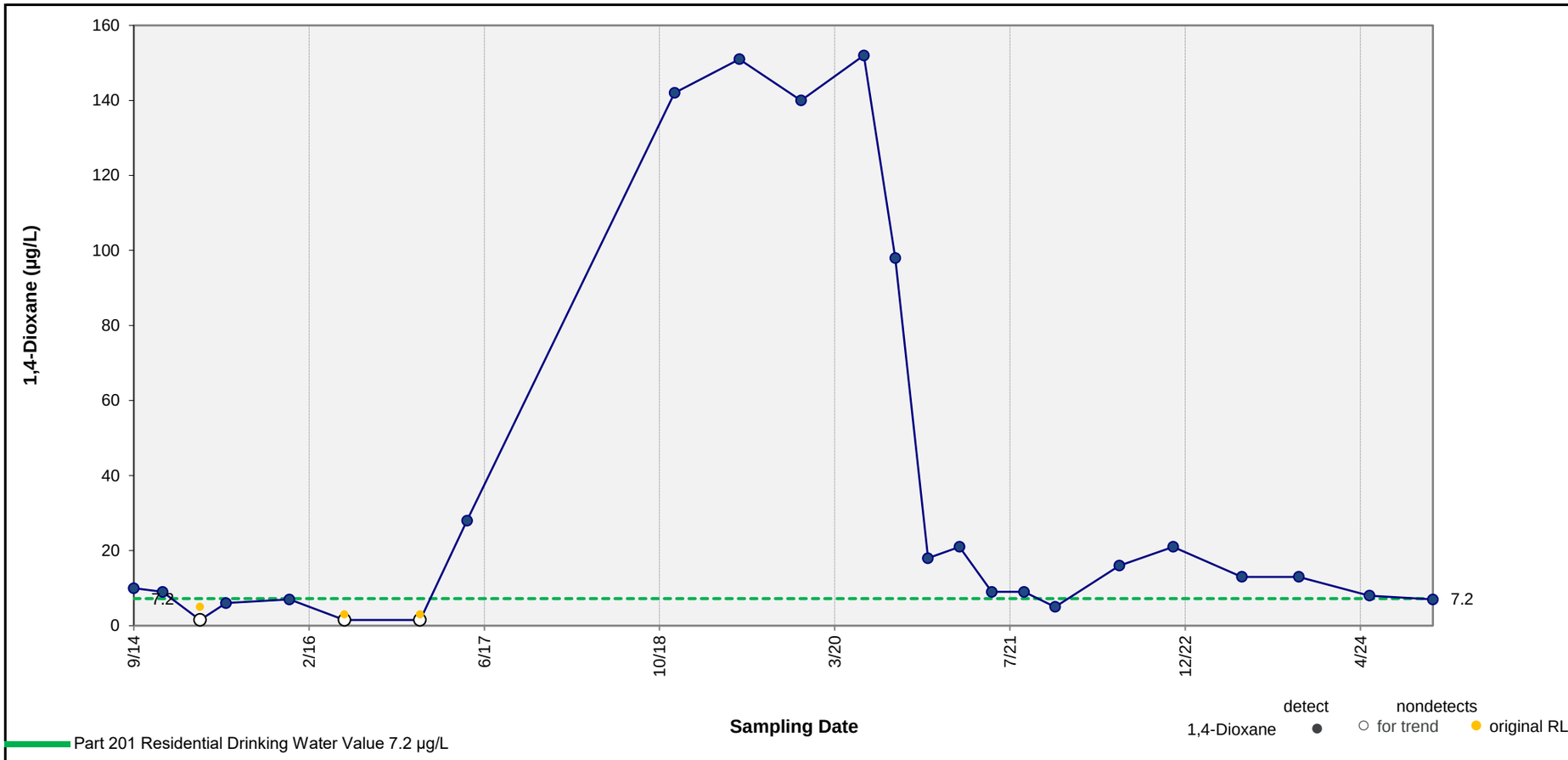
p value = 0.263 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Vinyl chloride in Well MW-14-60

RACER Lansing

Figure H-16



Results of Mann-Kendall Test for Trend: **No Significant Trend**

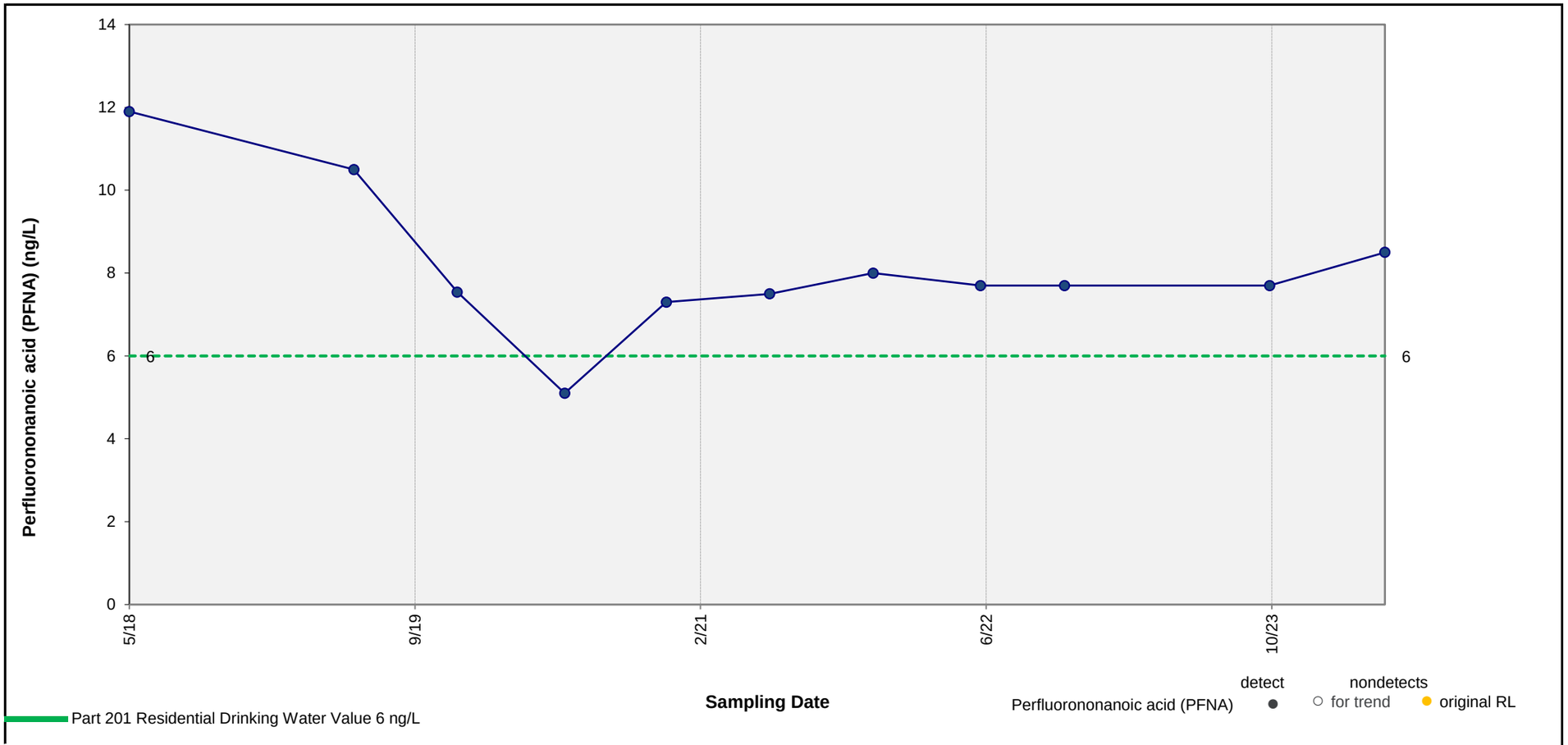
p value = 0.480 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – 1,4-Dioxane in Well MW-14-61

RACER Lansing

Figure H-17



Results of Mann-Kendall Test for Trend: **No Significant Trend**

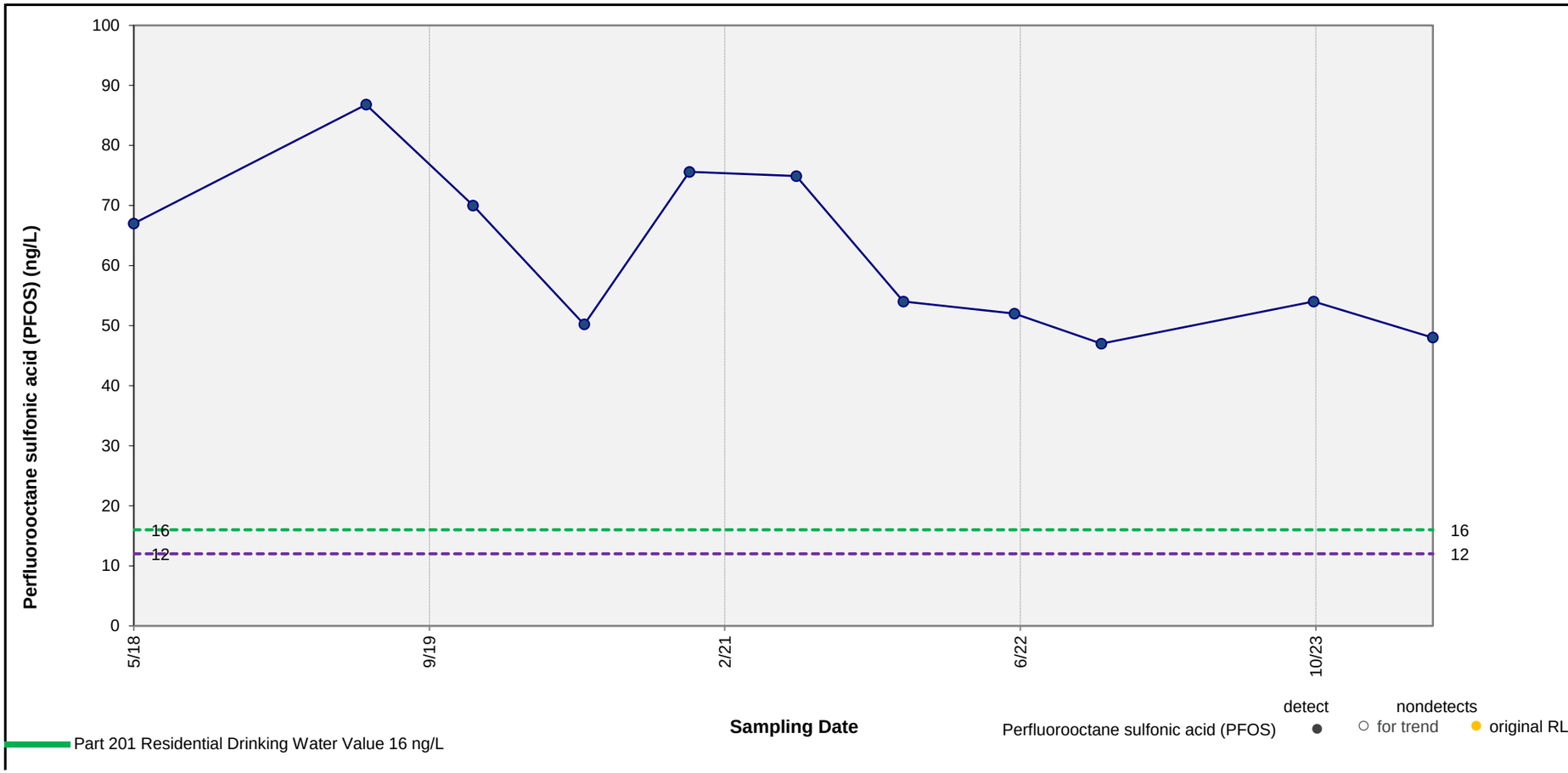
p value = 0.469 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Perfluorononanoic acid (PFNA) in Well MW-14-62

RACER Lansing

Figure H-18



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

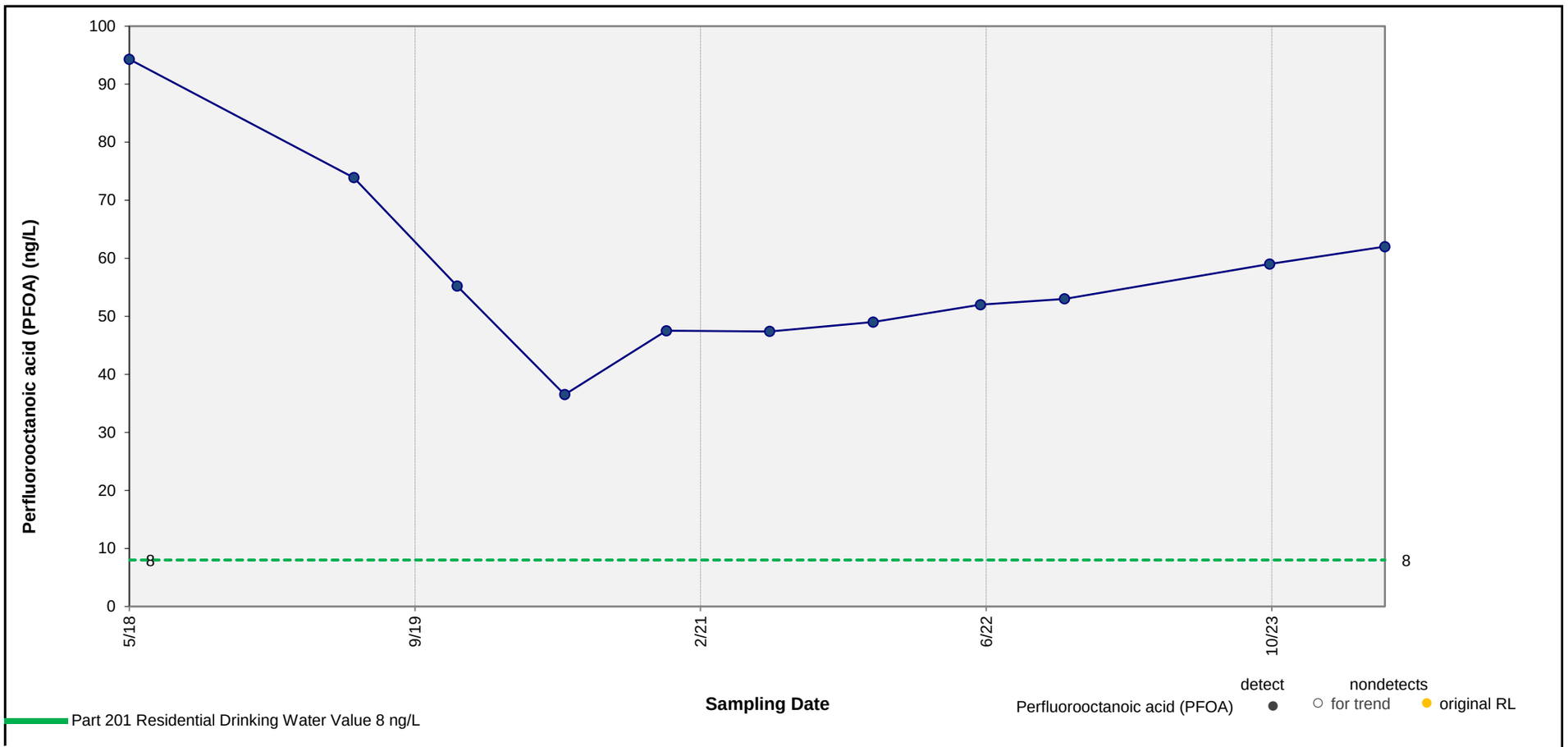
p value = 0.025 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Perfluorooctane sulfonic acid (PFOS) in Well MW-14-62

RACER Lansing

Figure H-19



Results of Mann-Kendall Test for Trend: **No Significant Trend**

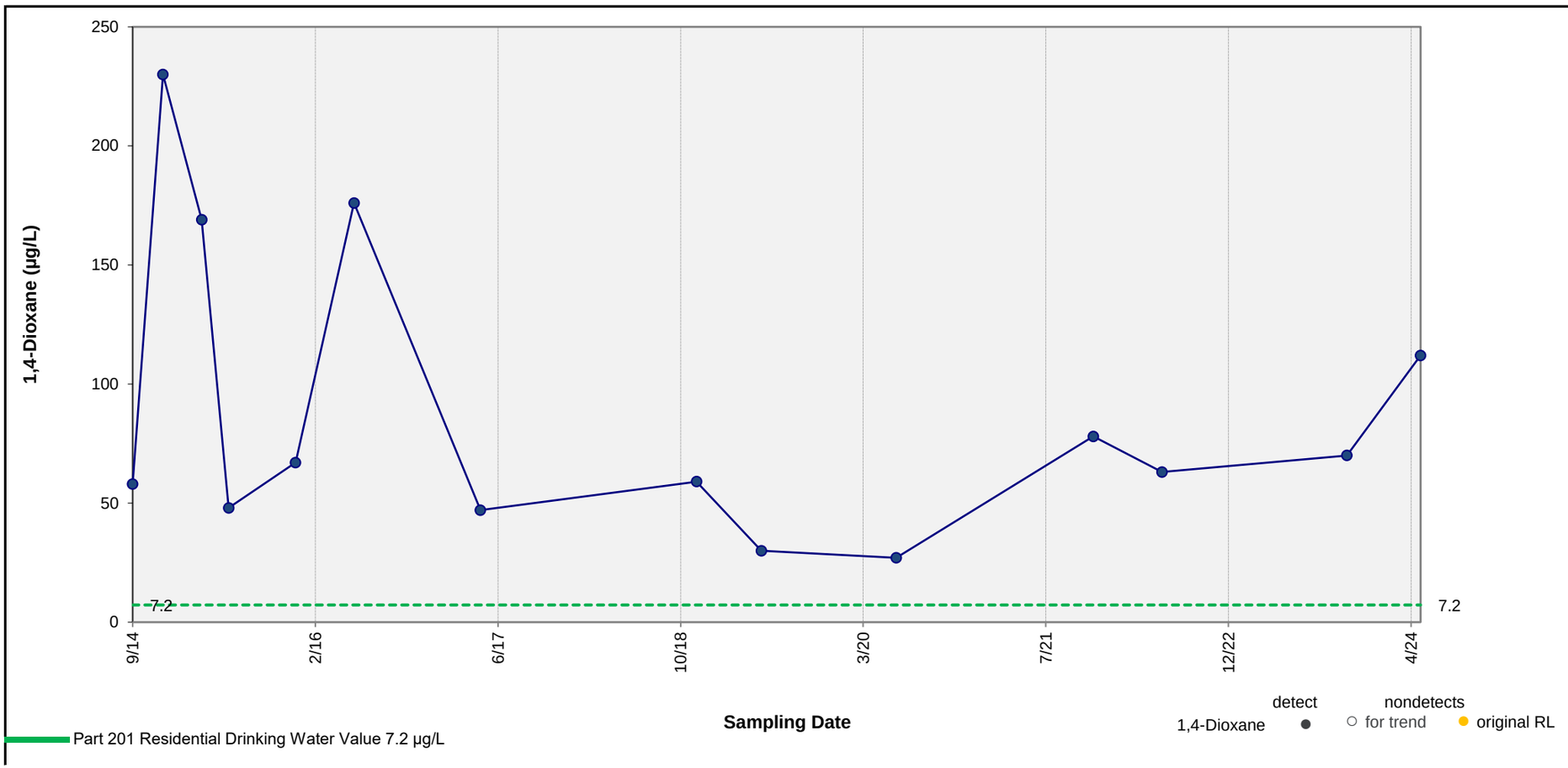
p value = 0.438 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Perfluorooctanoic acid (PFOA) in Well MW-14-62

RACER Lansing

Figure H-20



Part 201 Groundwater Surface Water Interface criteria value of 280 µg/L is off-scale

Results of Mann-Kendall Test for Trend: **No Significant Trend**

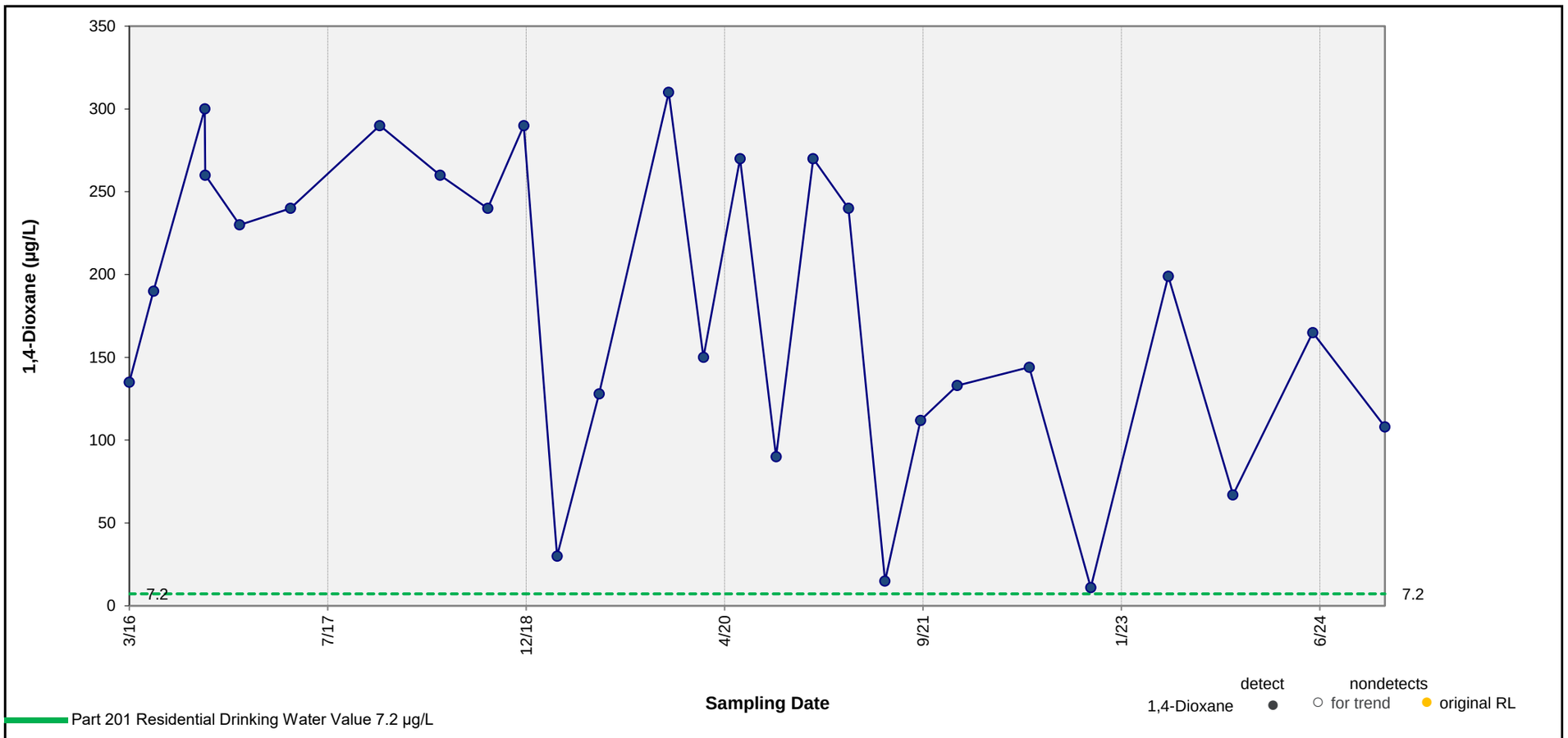
p value = 0.371 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – 1,4-Dioxane in Well MW-14-62

RACER Lansing

Figure H-21



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

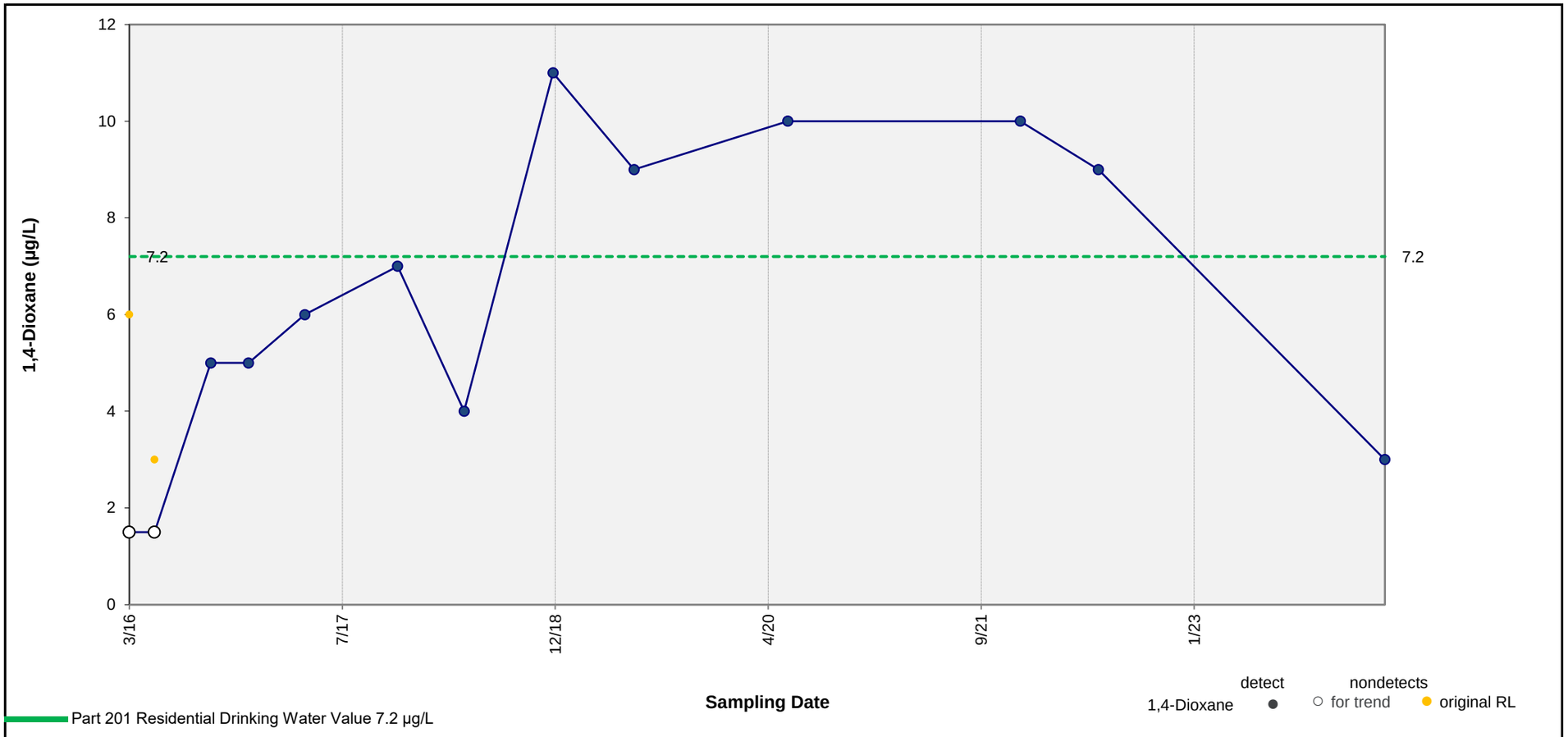
p value = 0.013 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – 1,4-Dioxane in Well MW-15-72

RACER Lansing

Figure H-22



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

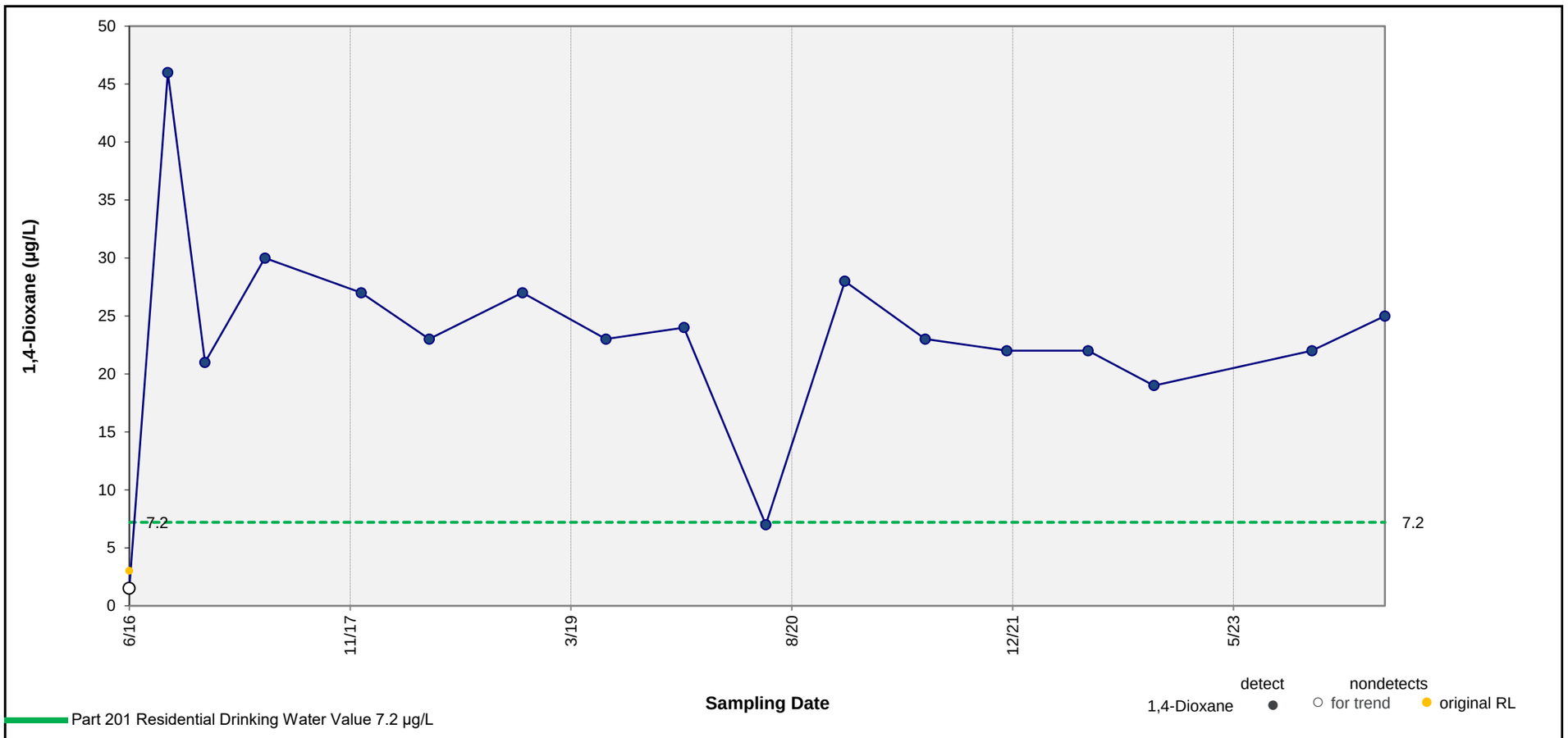
p value = 0.021 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – 1,4-Dioxane in Well MW-15-73

RACER Lansing

Figure H-23



Results of Mann-Kendall Test for Trend: **No Significant Trend**

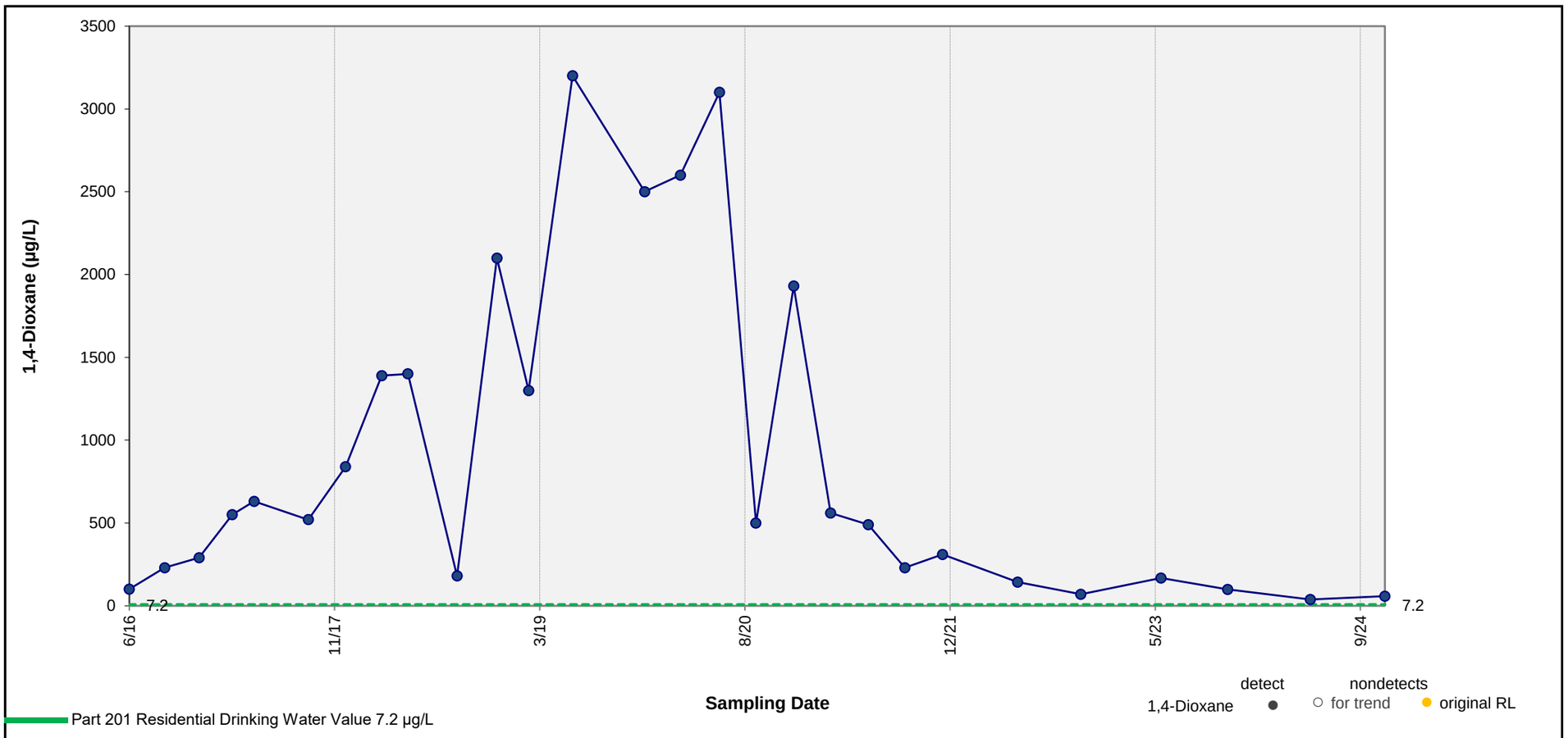
p value = 0.160 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – 1,4-Dioxane in Well MW-16-80

RACER Lansing

Figure H-24



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

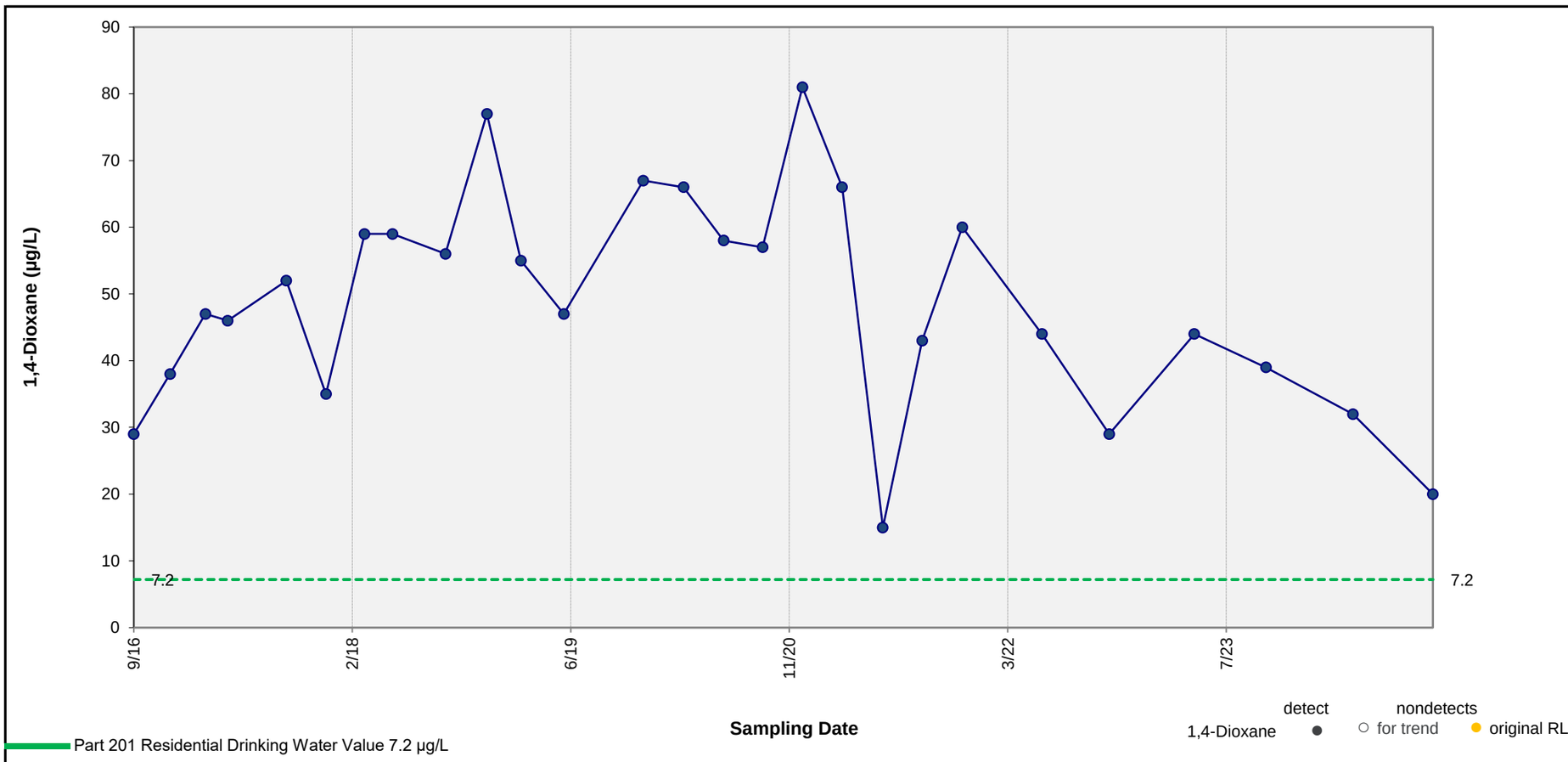
p value = 0.041 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – 1,4-Dioxane in Well MW-16-81

RACER Lansing

Figure H-25



Results of Mann-Kendall Test for Trend: **No Significant Trend**

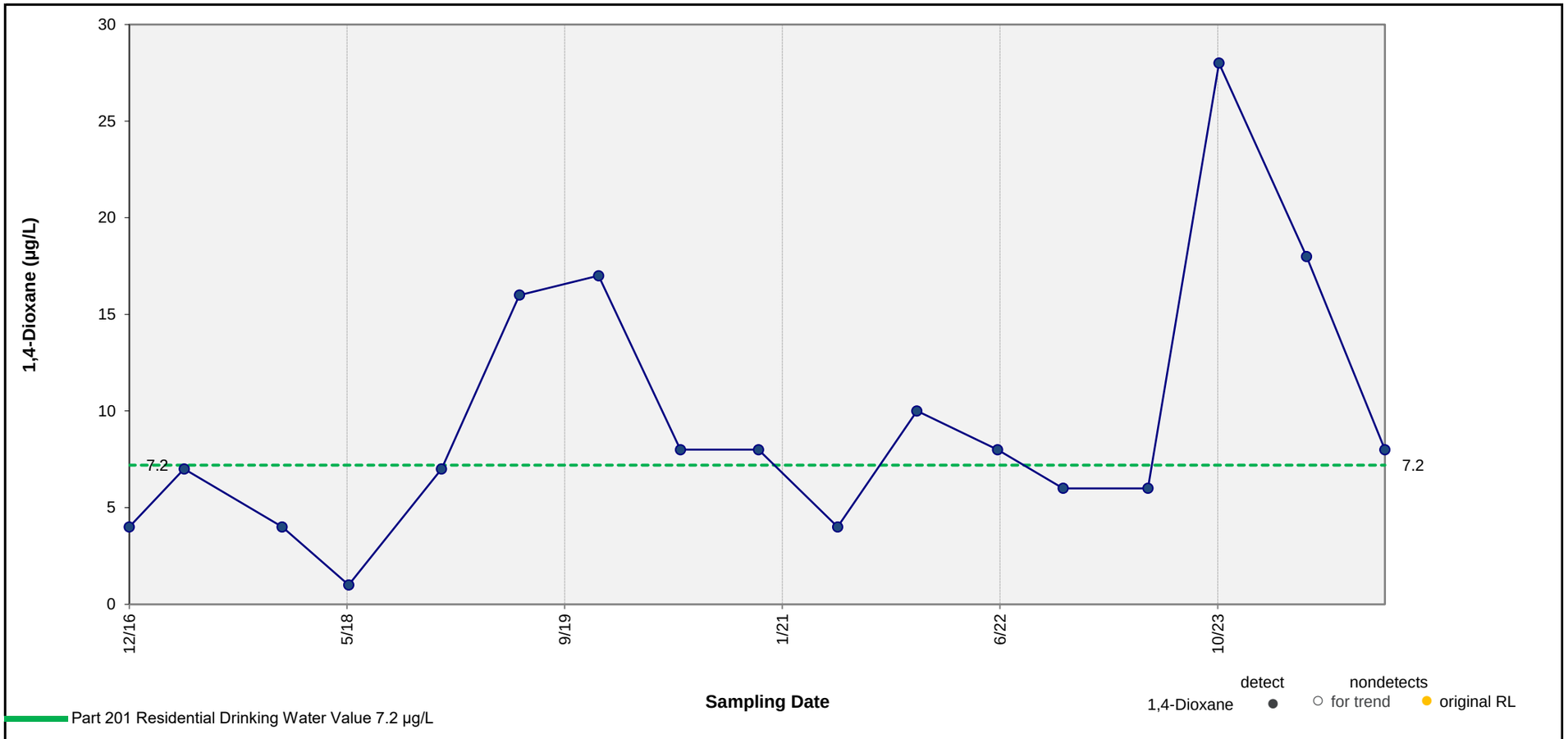
p value = 0.246 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – 1,4-Dioxane in Well MW-16-84

RACER Lansing

Figure H-26



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

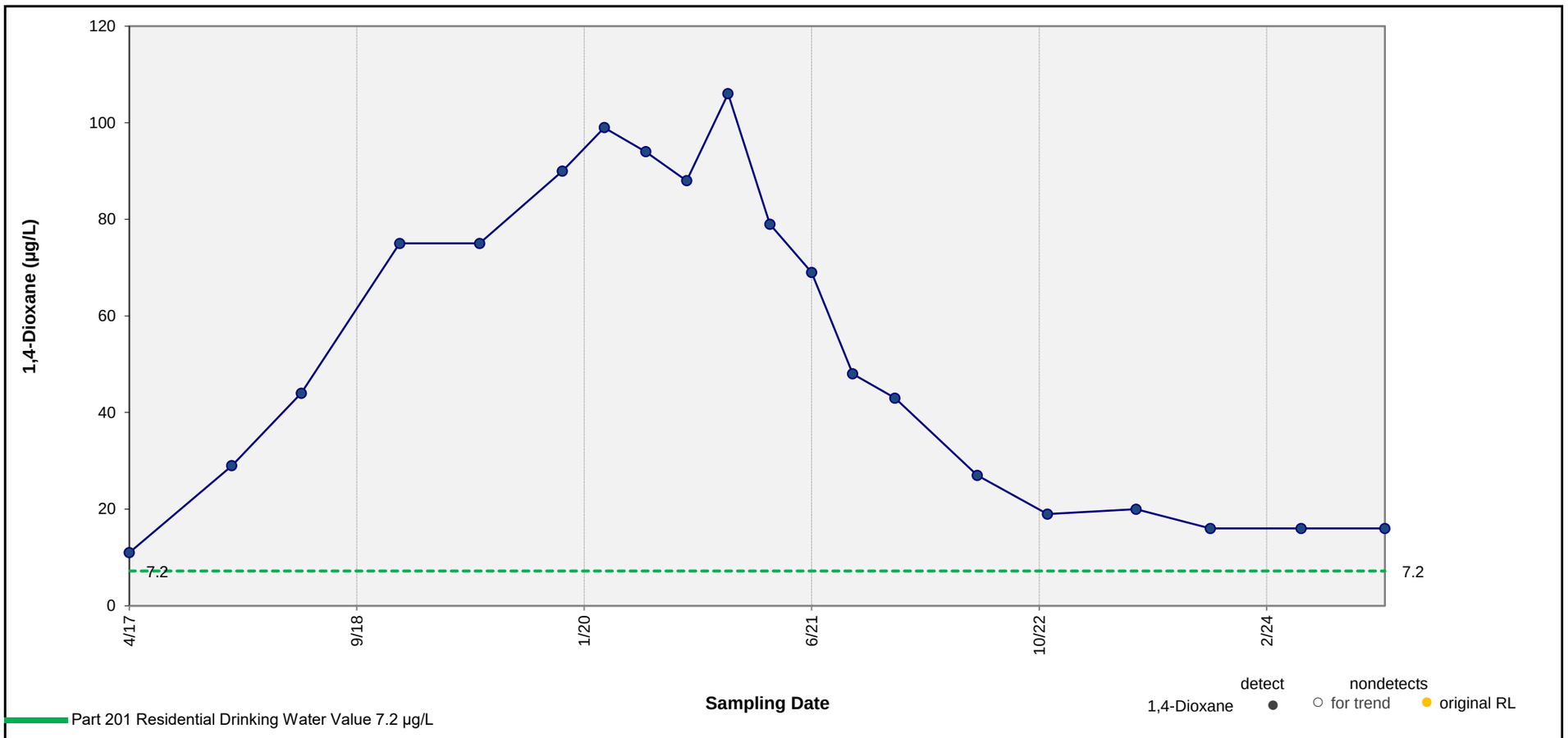
p value = 0.040 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – 1,4-Dioxane in Well MW-16-85

RACER Lansing

Figure H-27



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

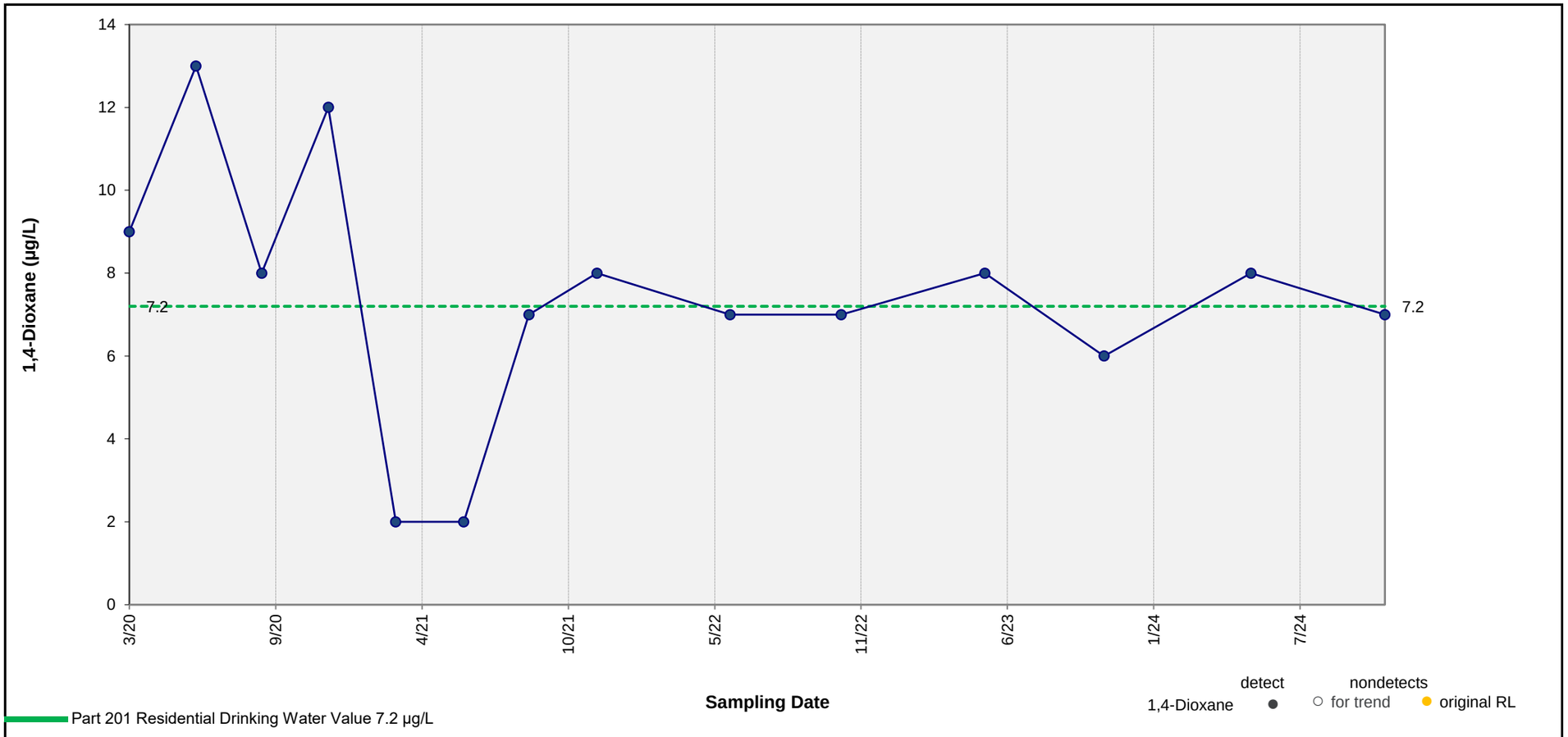
p value = 0.017 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – 1,4-Dioxane in Well MW-17-86

RACER Lansing

Figure H-28



Results of Mann-Kendall Test for Trend: **No Significant Trend**

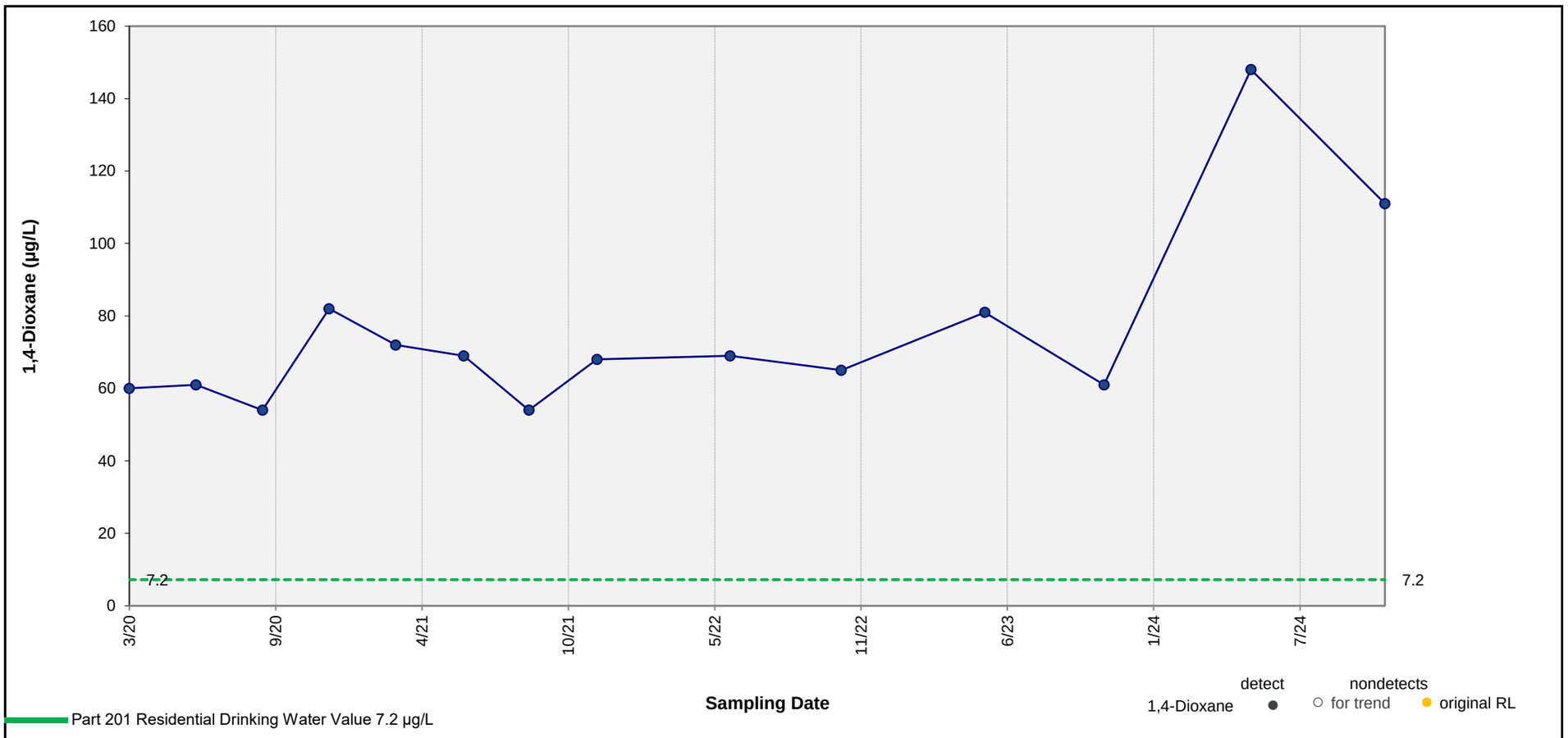
p value = 0.118 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – 1,4-Dioxane in Well MW-19-115

RACER Lansing

Figure H-29



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

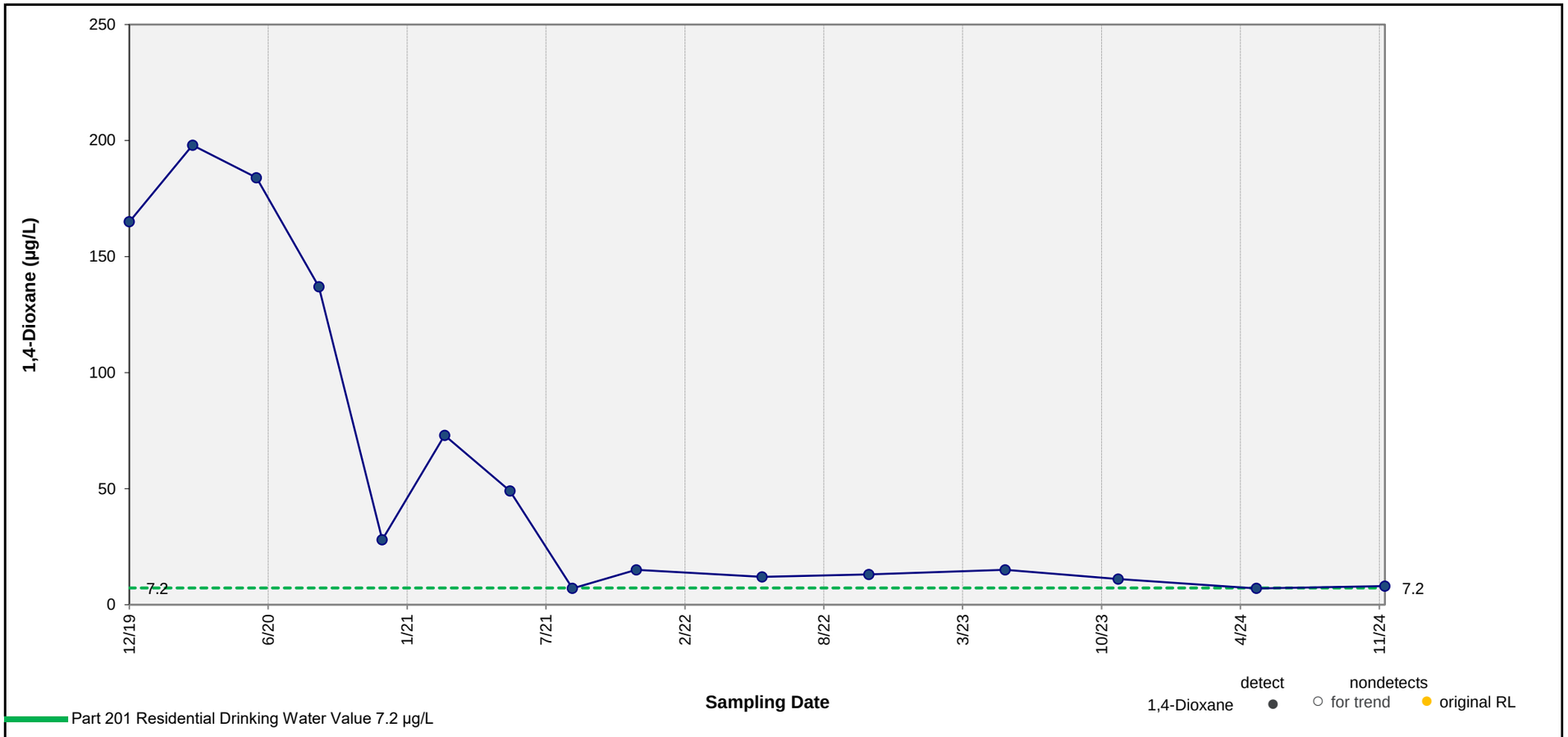
p value = 0.055 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – 1,4-Dioxane in Well MW-19-116

RACER Lansing

Figure H-30



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

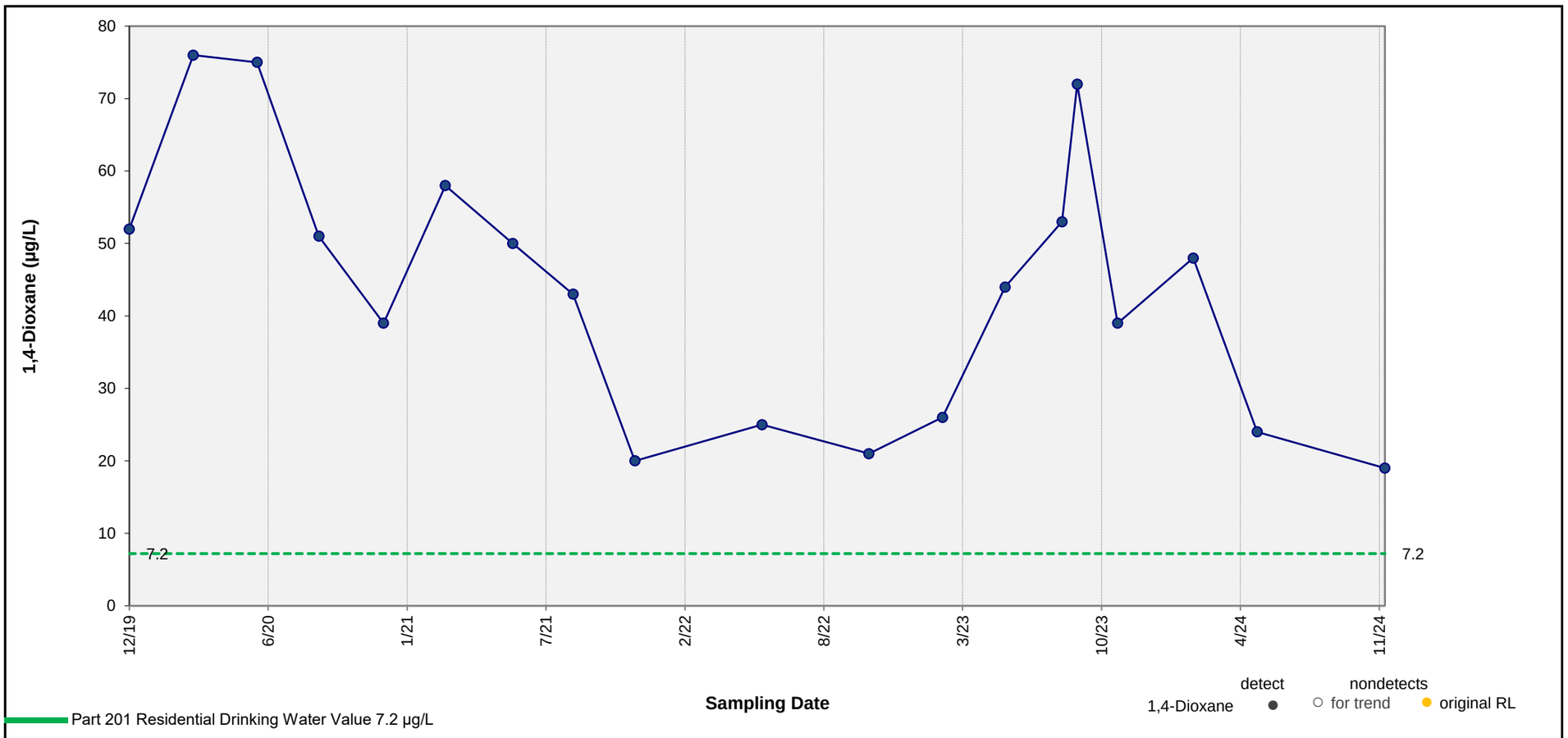
p value = <0.001 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – 1,4-Dioxane in Well MW-19-120

RACER Lansing

Figure H-31



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

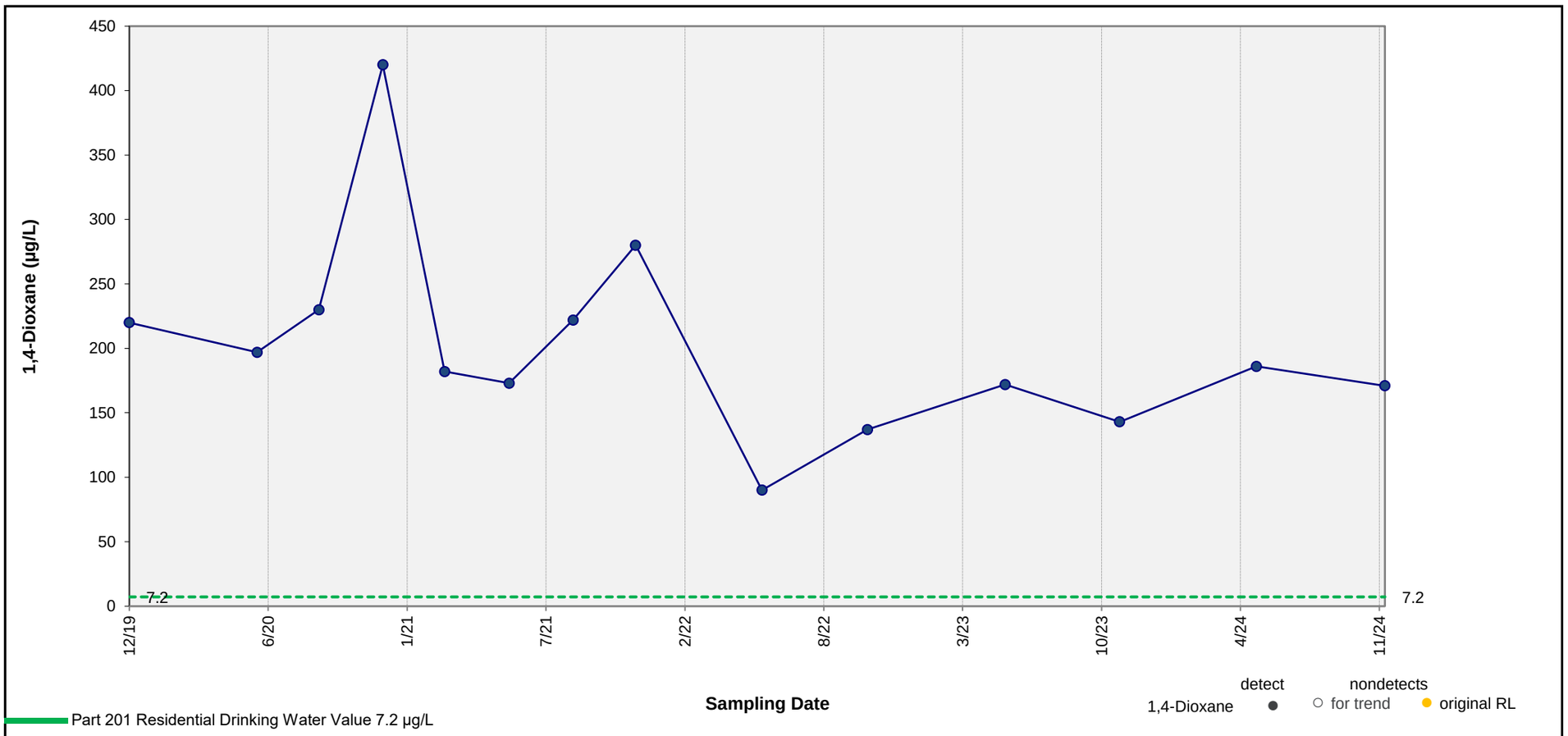
p value = 0.016 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – 1,4-Dioxane in Well MW-19-123

RACER Lansing

Figure H-32



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

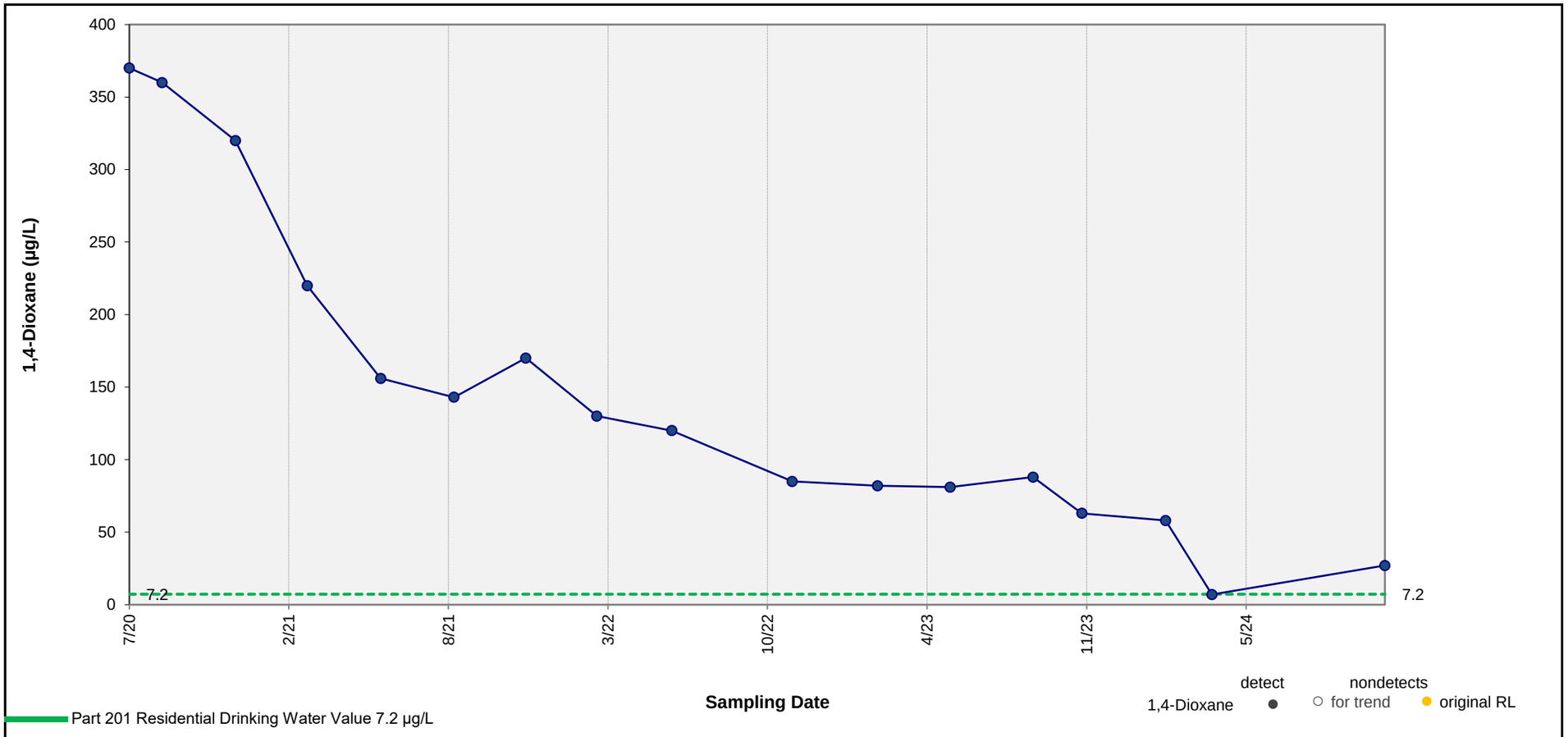
p value = 0.040 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – 1,4-Dioxane in Well MW-19-124

RACER Lansing

Figure H-33



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

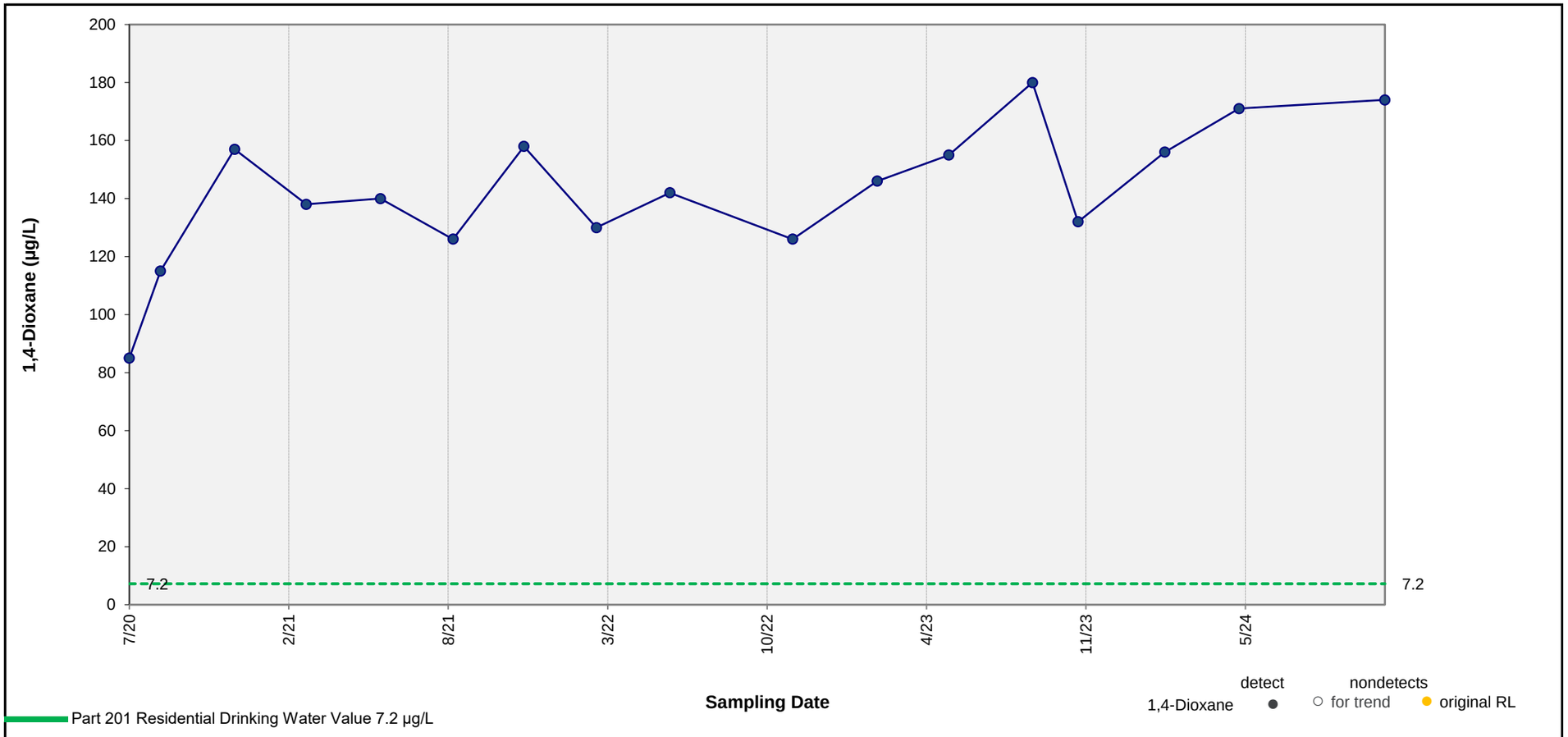
p value = <0.001 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – 1,4-Dioxane in Well MW-20-126

RACER Lansing

Figure H-34



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

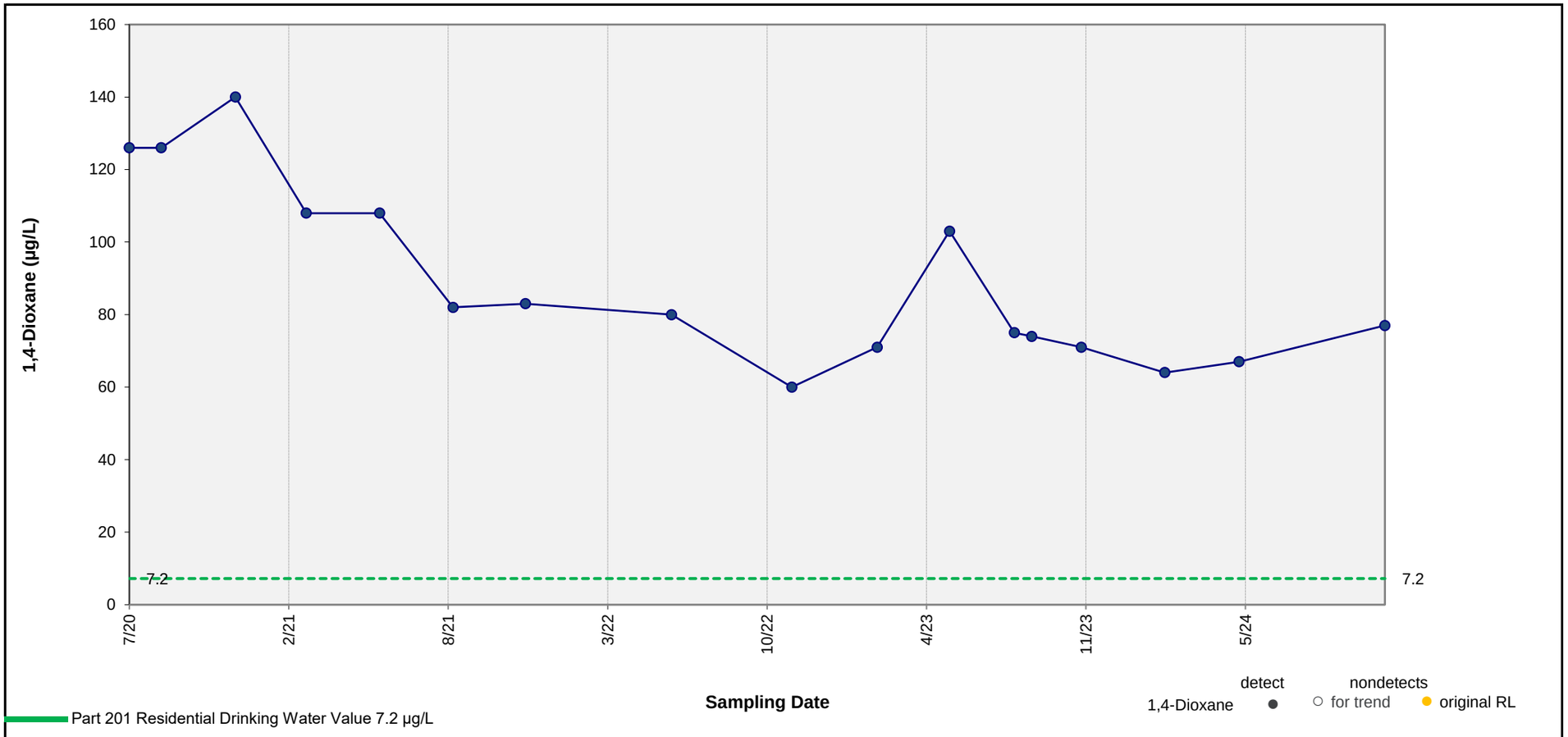
p value = 0.003 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – 1,4-Dioxane in Well MW-20-127

RACER Lansing

Figure H-35



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

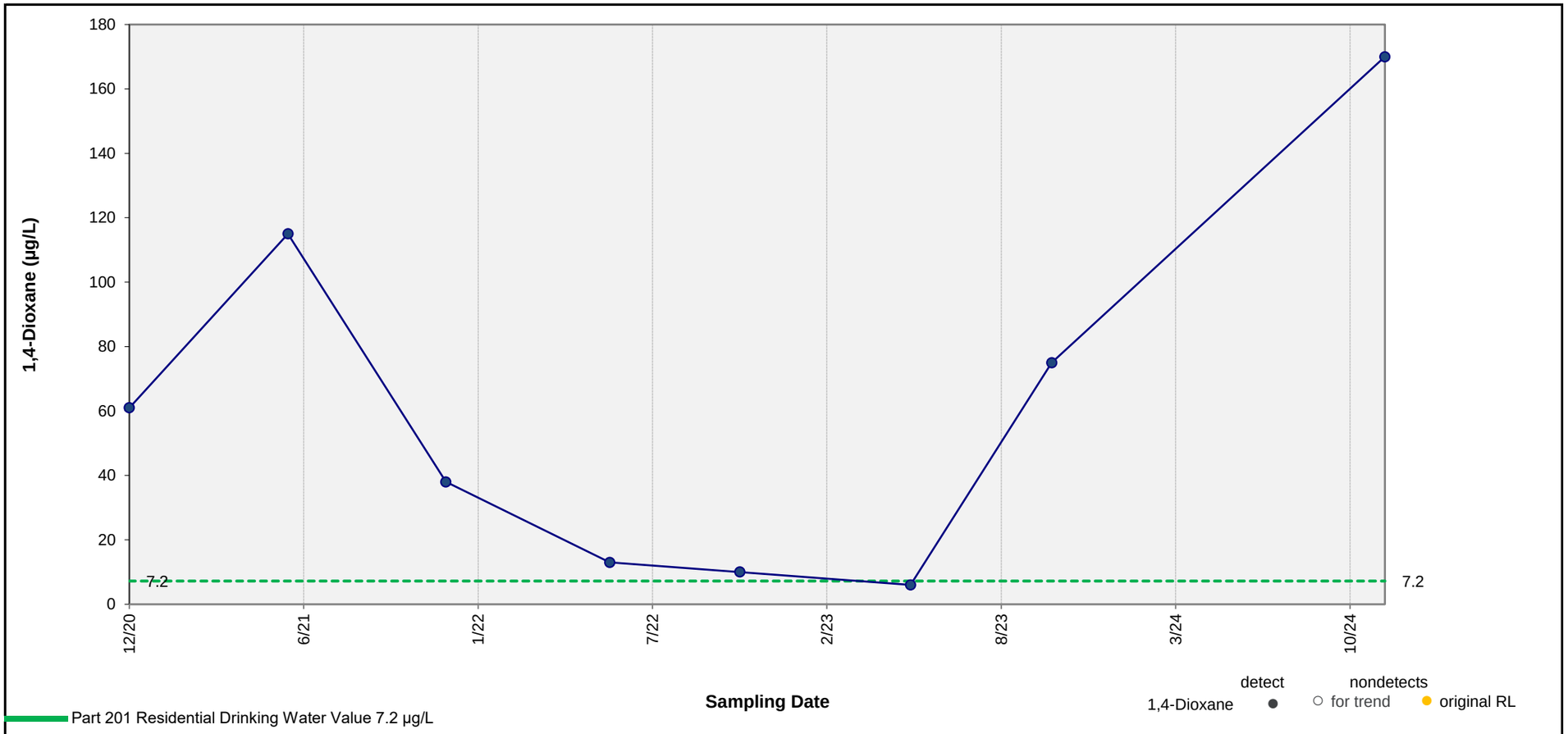
p value = <0.001 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – 1,4-Dioxane in Well MW-20-129

RACER Lansing

Figure H-36



Results of Mann-Kendall Test for Trend: **No Significant Trend**

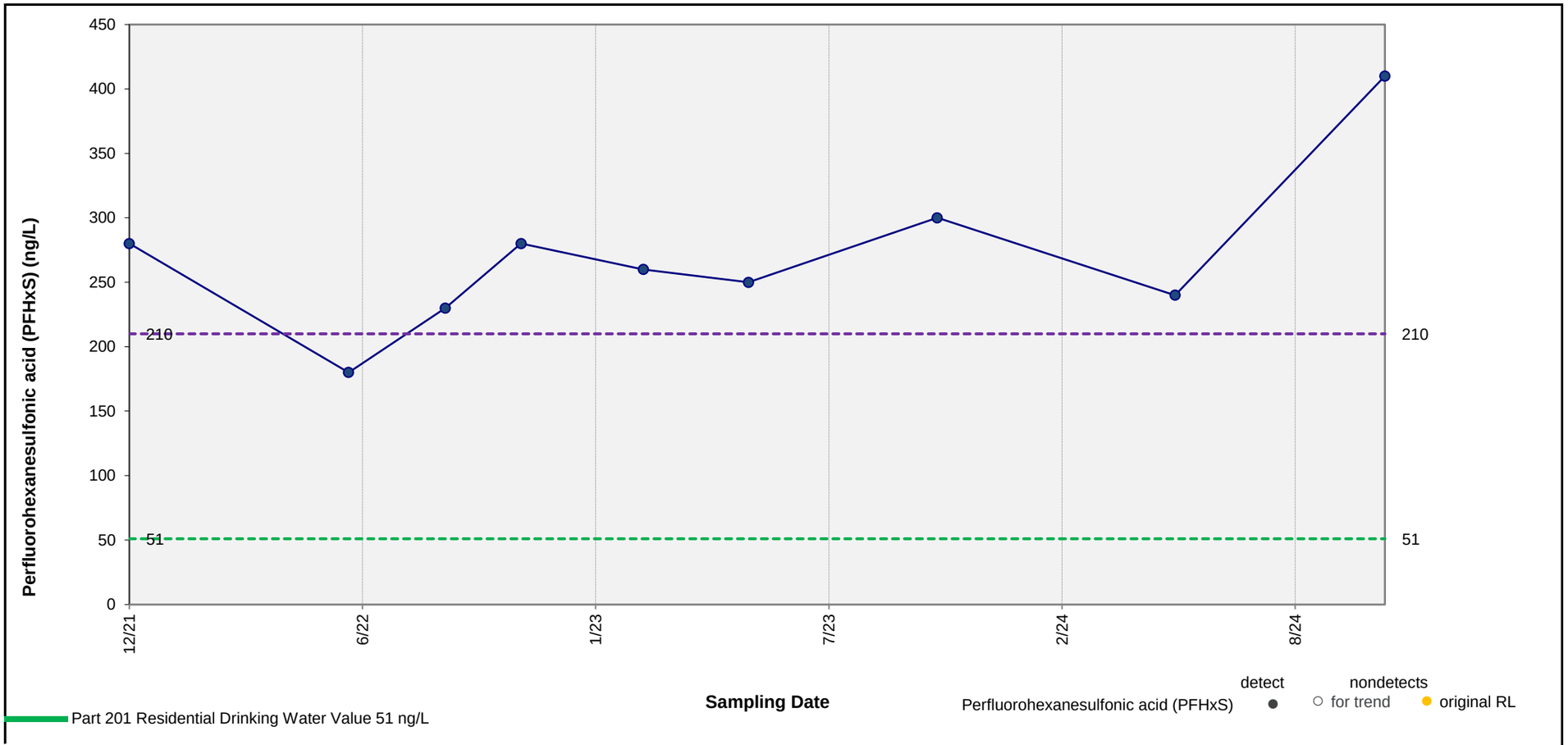
p value = 0.452 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – 1,4-Dioxane in Well MW-20-130

RACER Lansing

Figure H-37



Results of Mann-Kendall Test for Trend: **No Significant Trend**

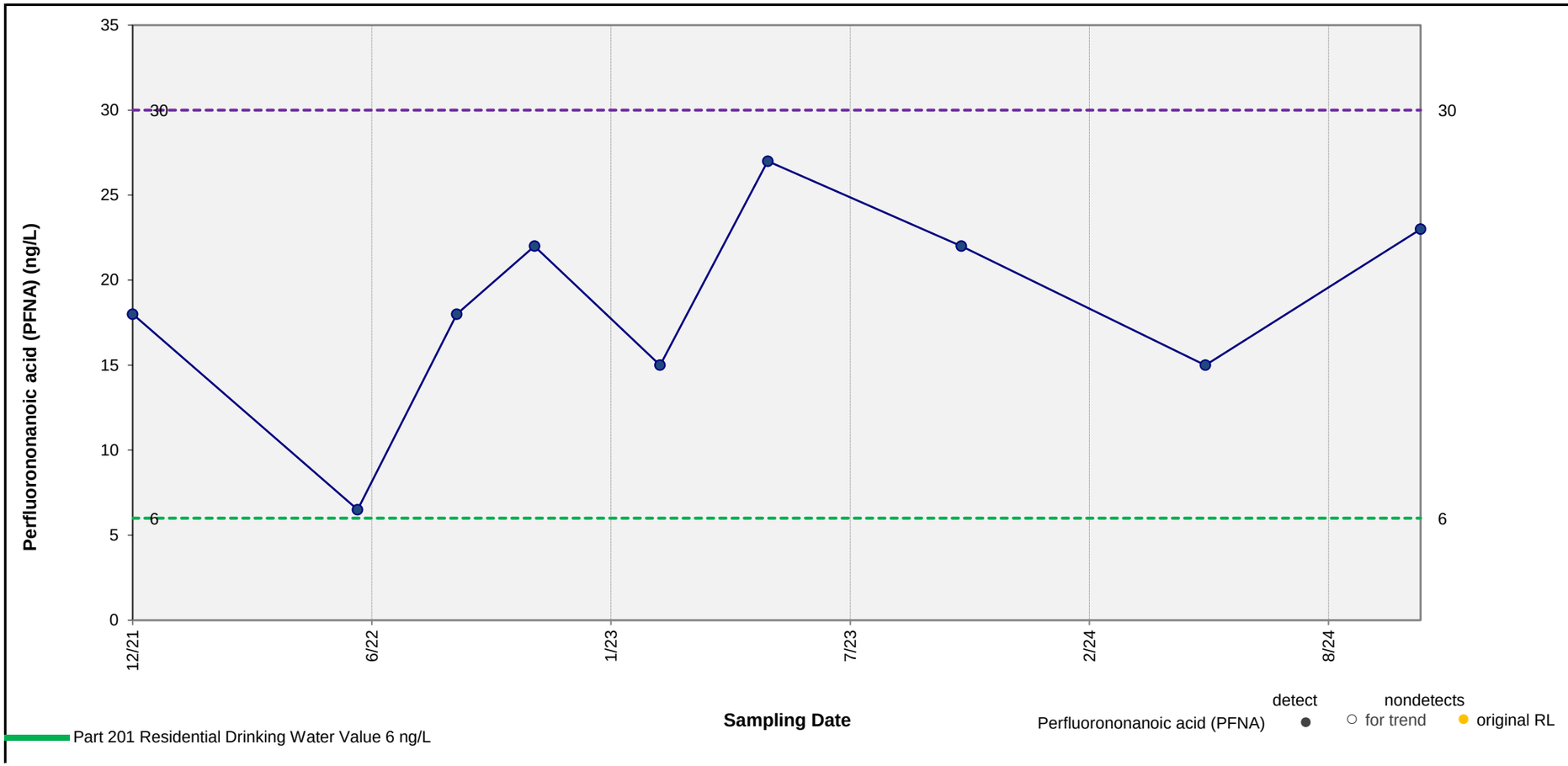
p value = 0.155 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Perfluorohexanesulfonic acid (PFHxS) in Well MW-21-139

RACER Lansing

Figure H-38



Results of Mann-Kendall Test for Trend: **No Significant Trend**

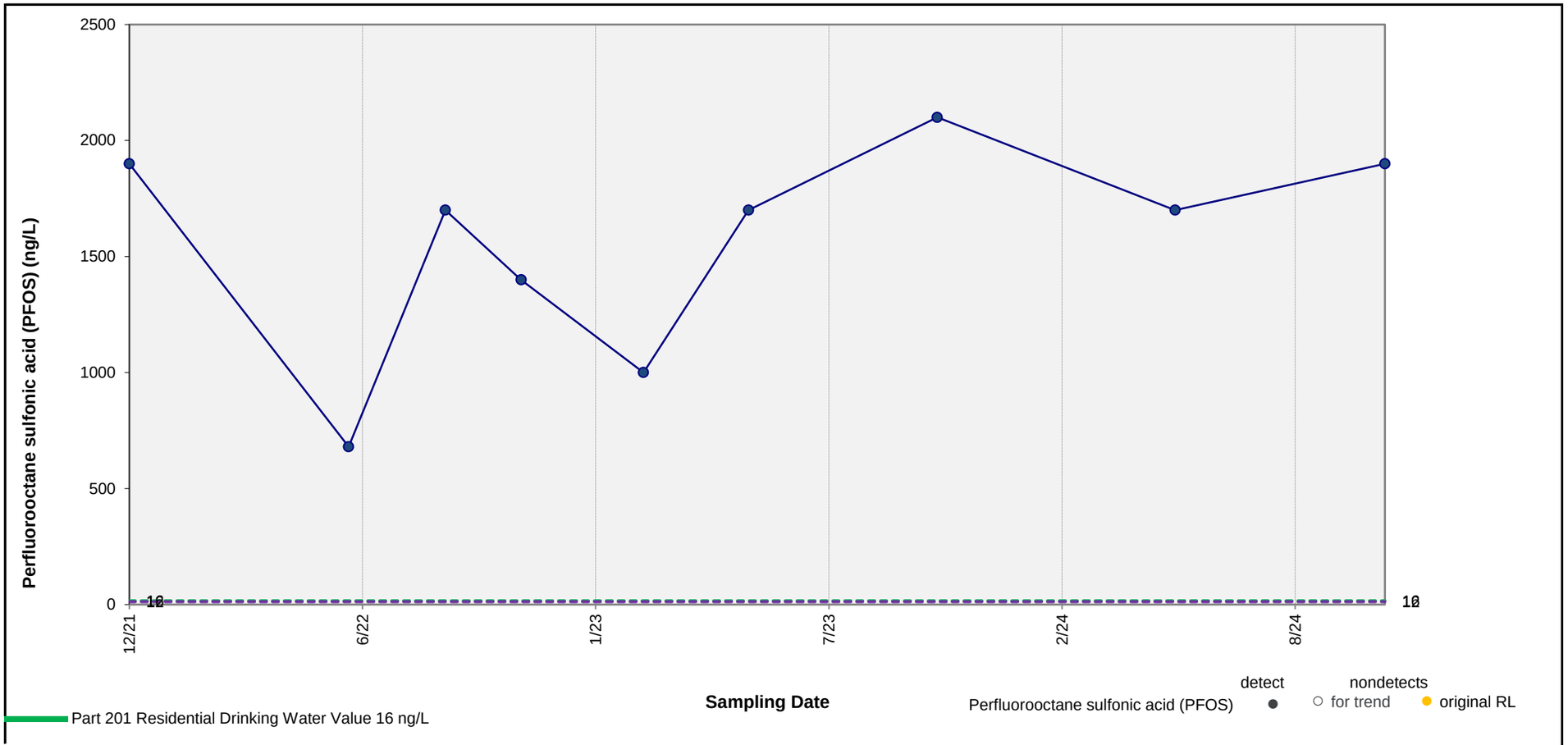
p value = 0.155 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Perfluorononanoic acid (PFNA) in Well MW-21-139

RACER Lansing

Figure H-39



Results of Mann-Kendall Test for Trend: **No Significant Trend**

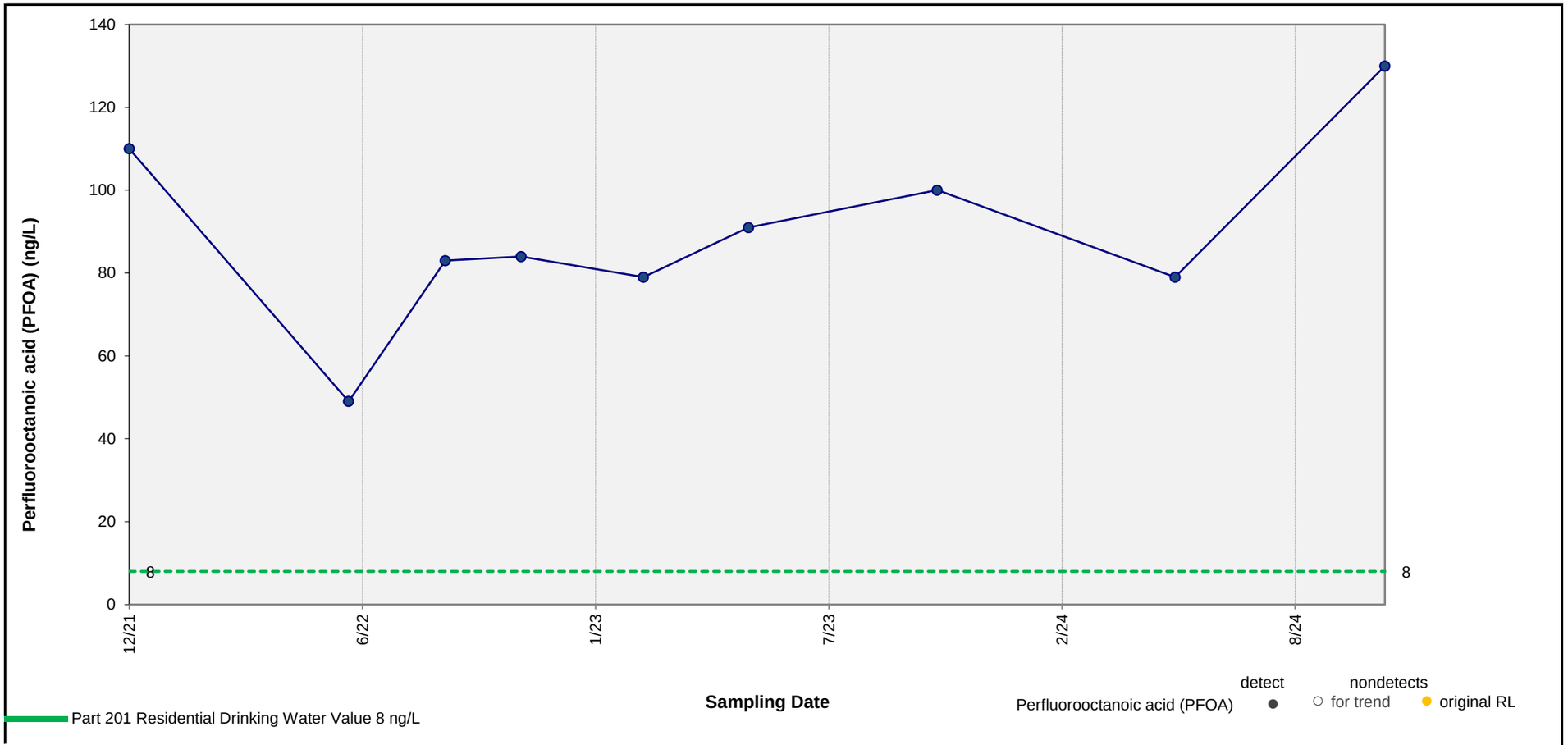
p value = 0.179 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Perfluorooctane sulfonic acid (PFOS) in Well MW-21-139

RACER Lansing

Figure H-40



Results of Mann-Kendall Test for Trend: **No Significant Trend**

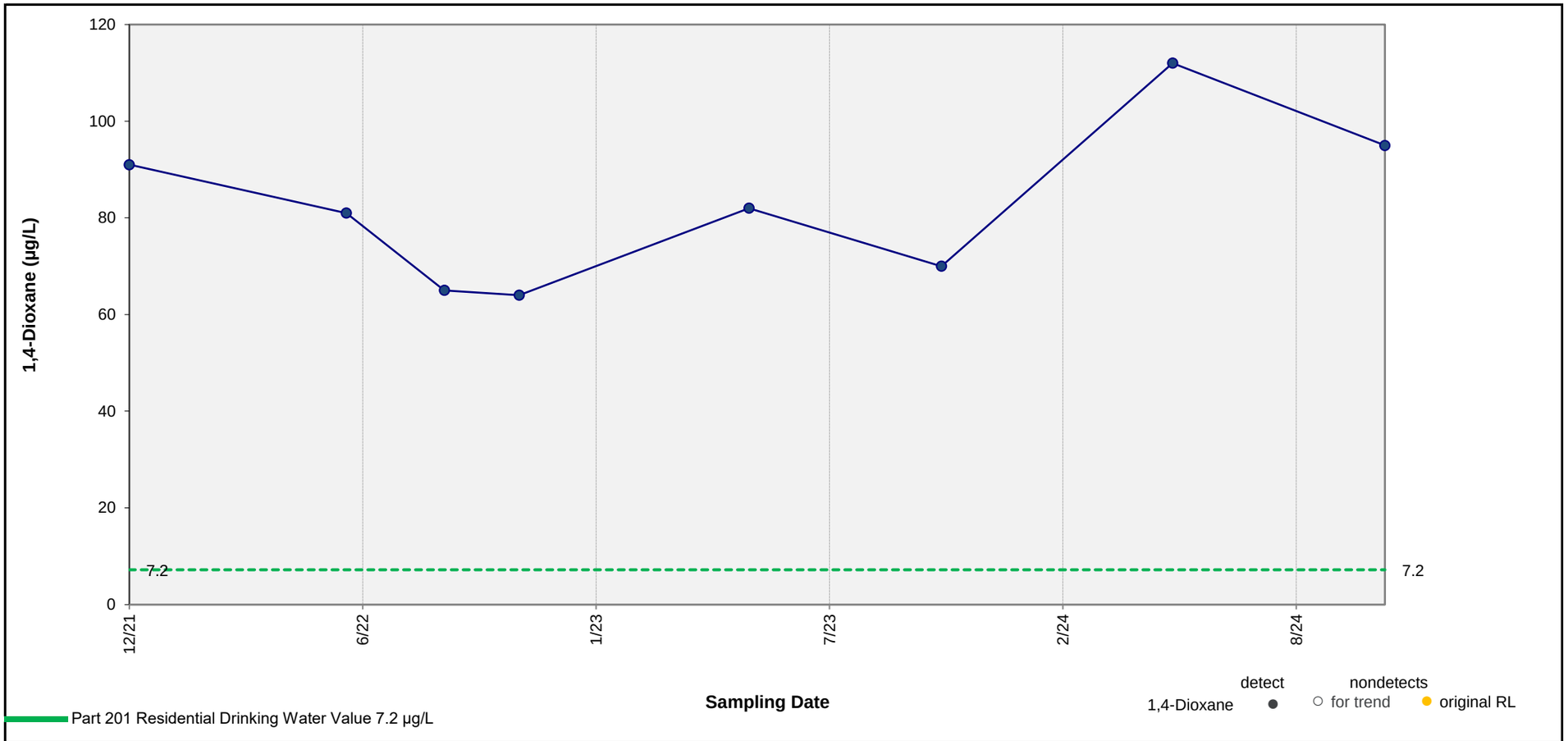
p value = 0.209 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Perfluorooctanoic acid (PFOA) in Well MW-21-139

RACER Lansing

Figure H-41



Results of Mann-Kendall Test for Trend: **No Significant Trend**

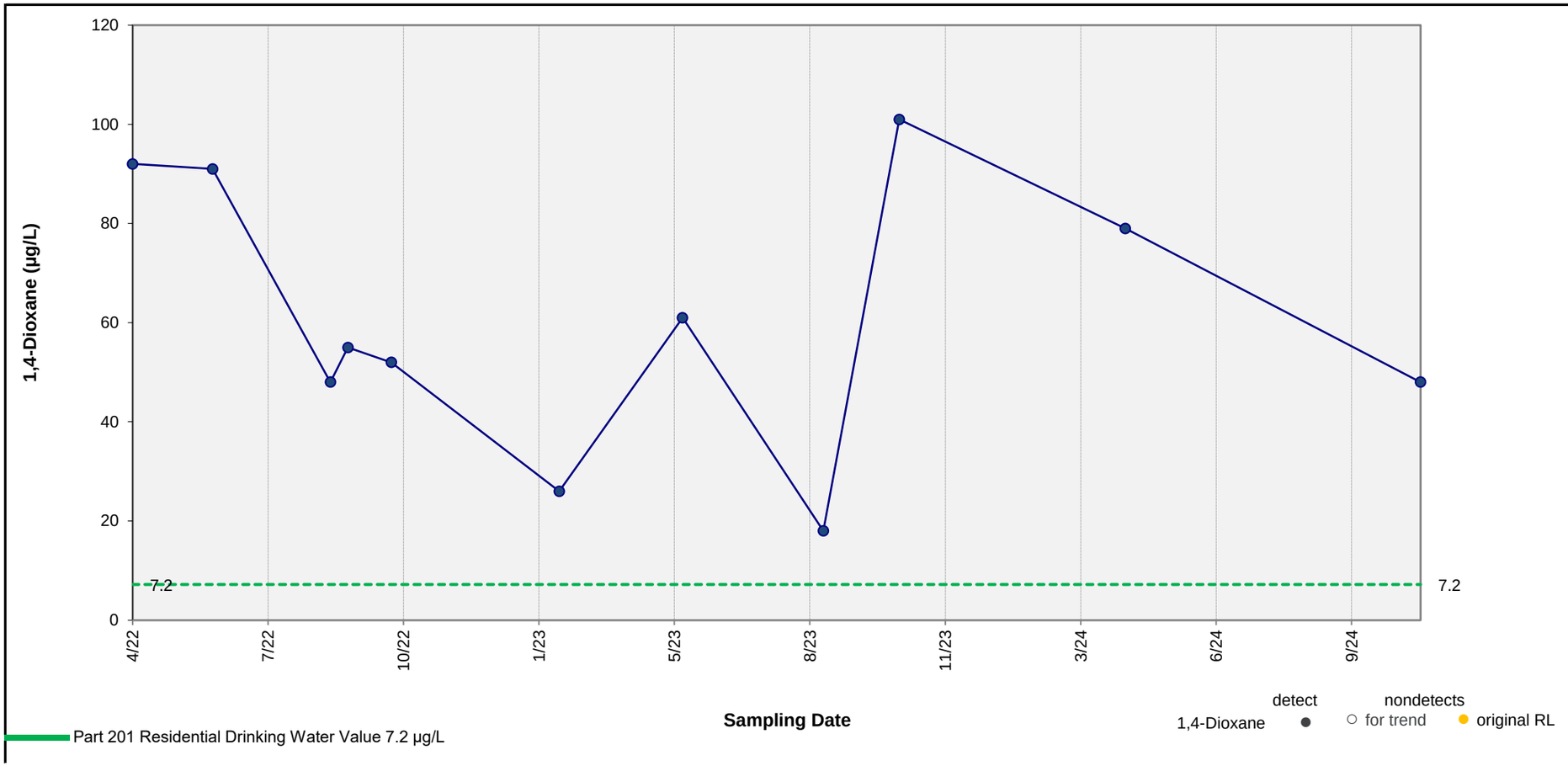
p value = 0.274 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – 1,4-Dioxane in Well MW-21-142

RACER Lansing

Figure H-42



Part 201 Groundwater Surface Water Interface criteria value of 280 µg/L is off-scale

Results of Mann-Kendall Test for Trend: **No Significant Trend**

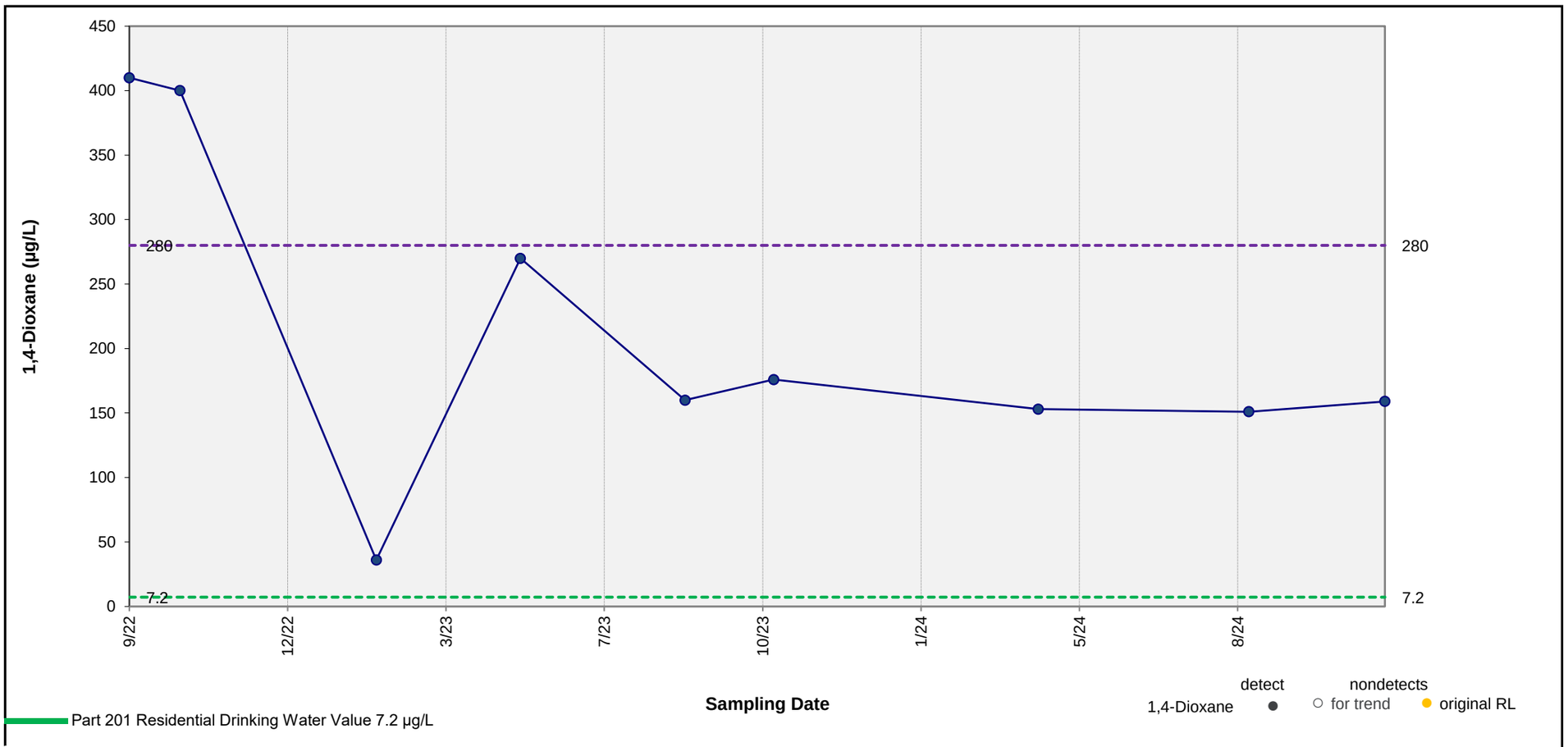
p value = 0.241 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – 1,4-Dioxane in Well MW-22-153

RACER Lansing

Figure H-43



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

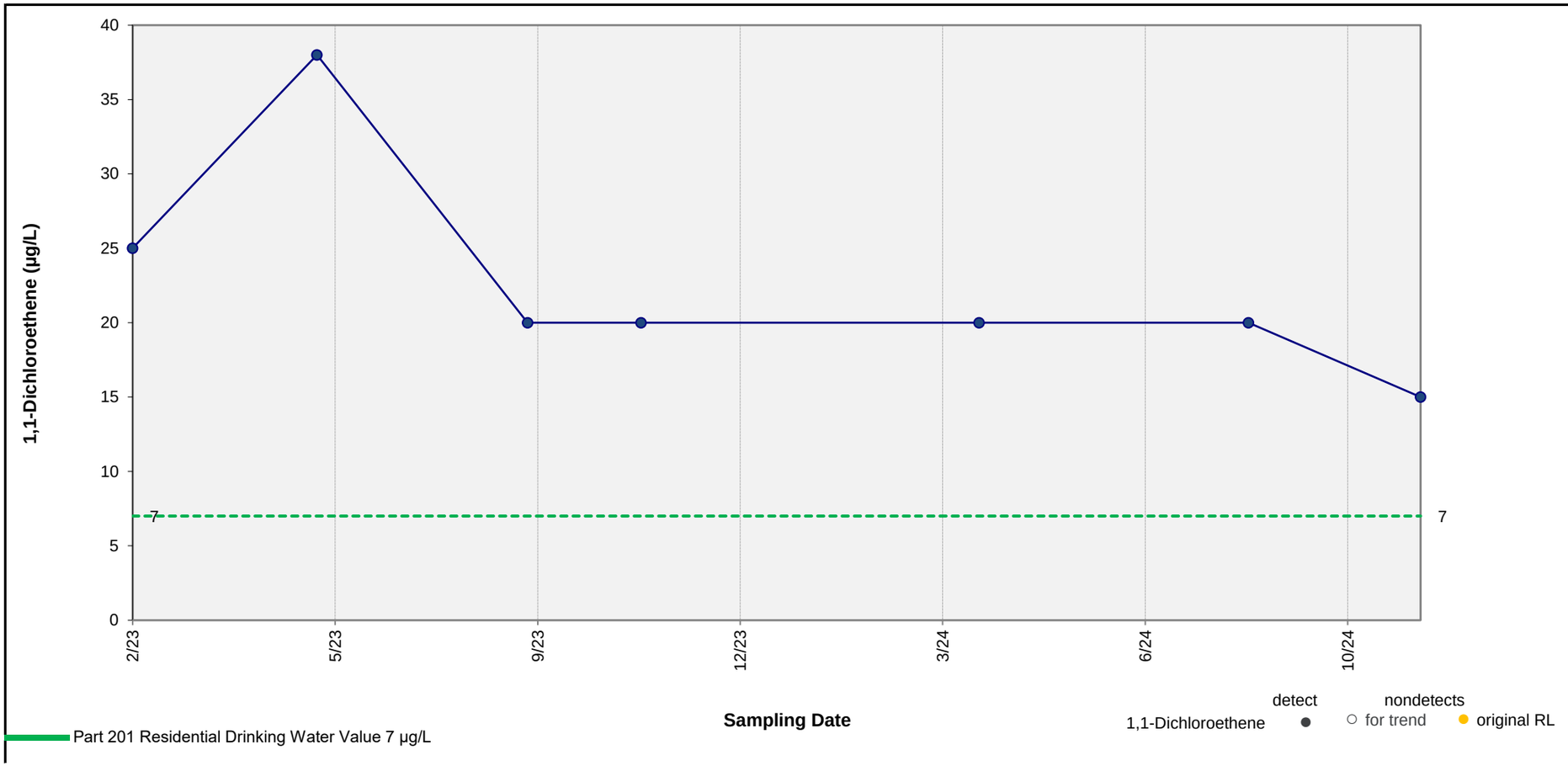
p value = 0.038 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – 1,4-Dioxane in Well MW-22-155

RACER Lansing

Figure H-44



Part 201 Groundwater Surface Water Interface criteria value of 130 µg/L is off-scale

Results of Mann-Kendall Test for Trend: **DECREASING TREND**

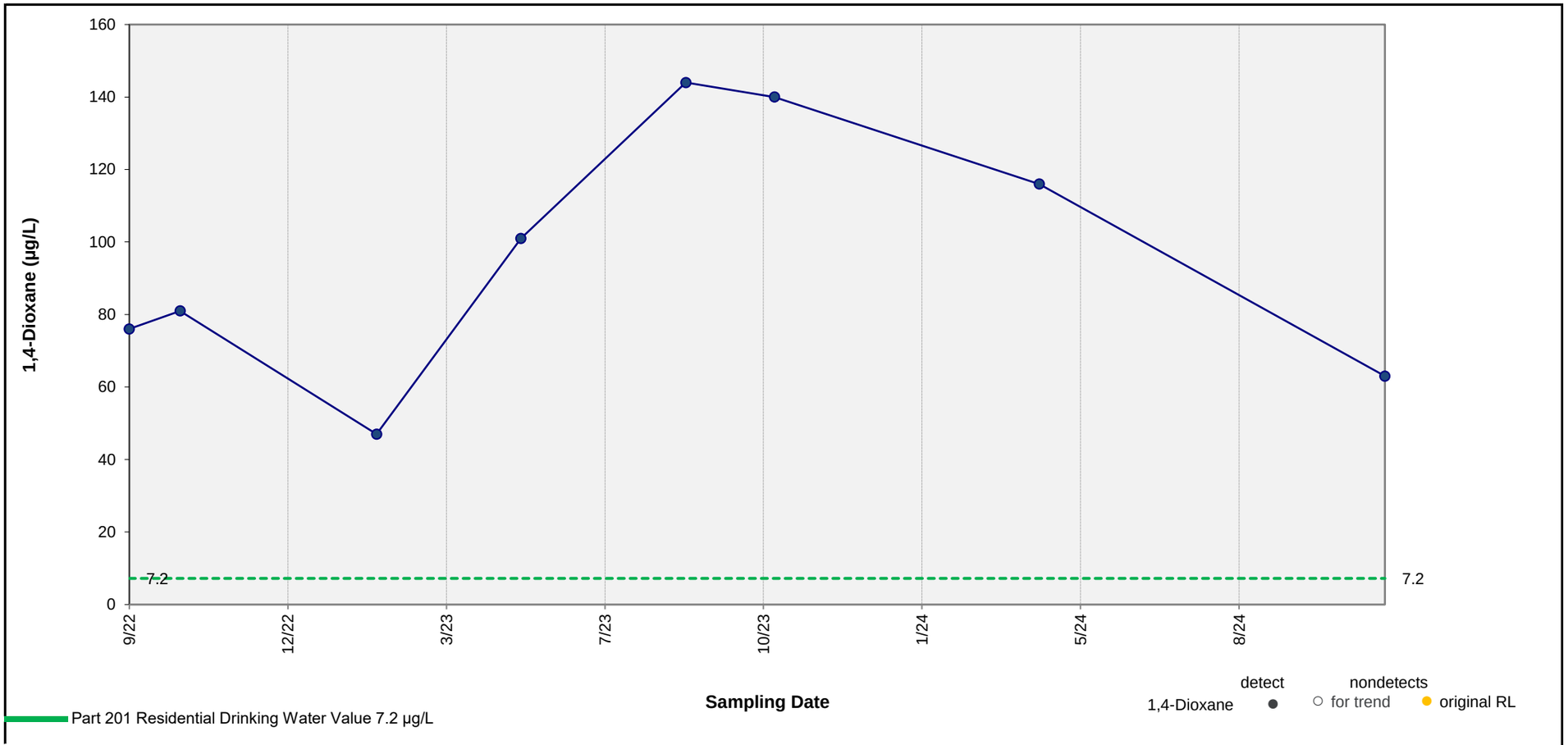
p value = 0.035 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – 1,1-Dichloroethene in Well MW-22-156

RACER Lansing

Figure H-45



Part 201 Groundwater Surface Water Interface criteria value of 280 µg/L is off-scale

Results of Mann-Kendall Test for Trend: **No Significant Trend**

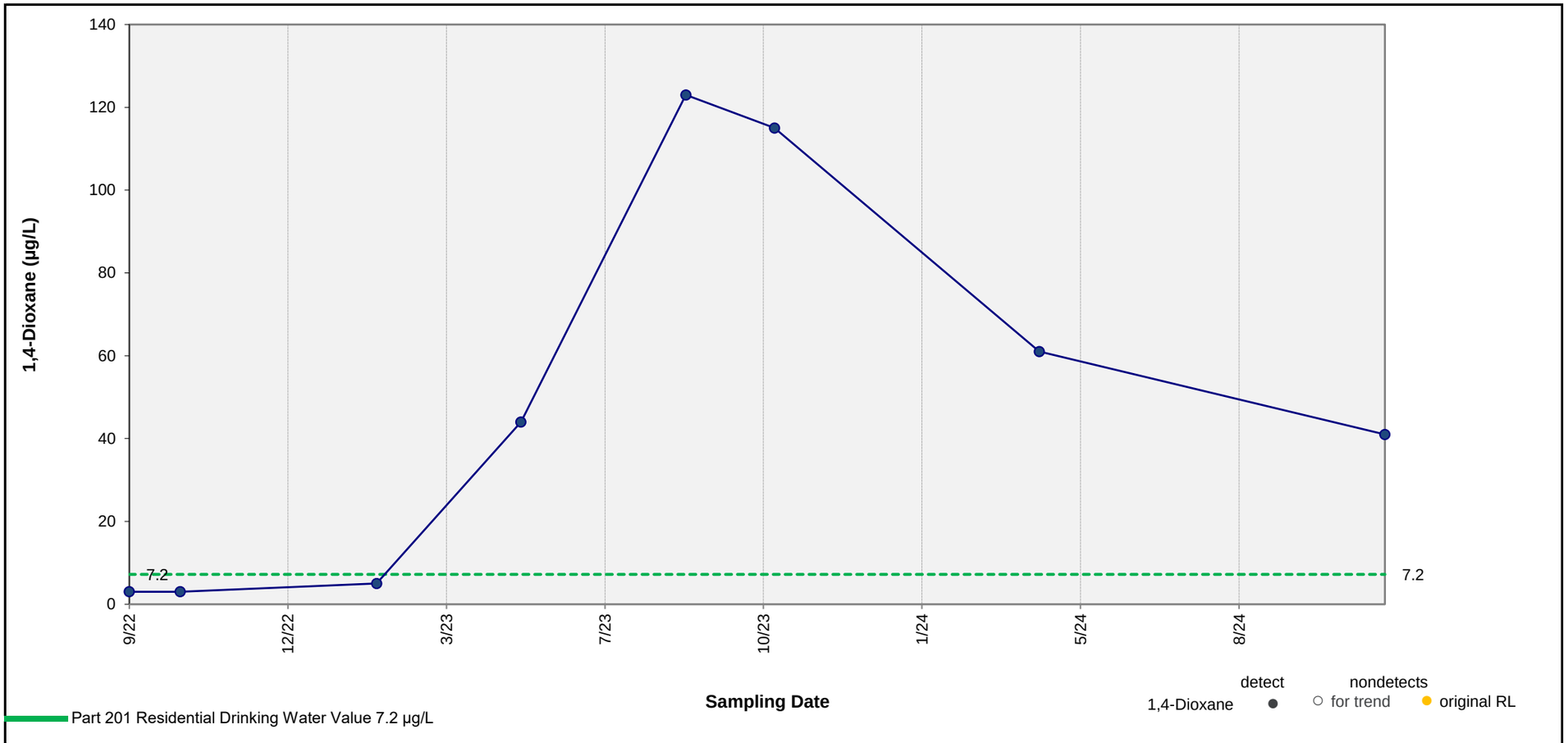
p value = 0.274 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – 1,4-Dioxane in Well MW-22-156

RACER Lansing

Figure H-46



Part 201 Groundwater Surface Water Interface criteria value of 280 µg/L is off-scale

Results of Mann-Kendall Test for Trend: **INCREASING TREND**

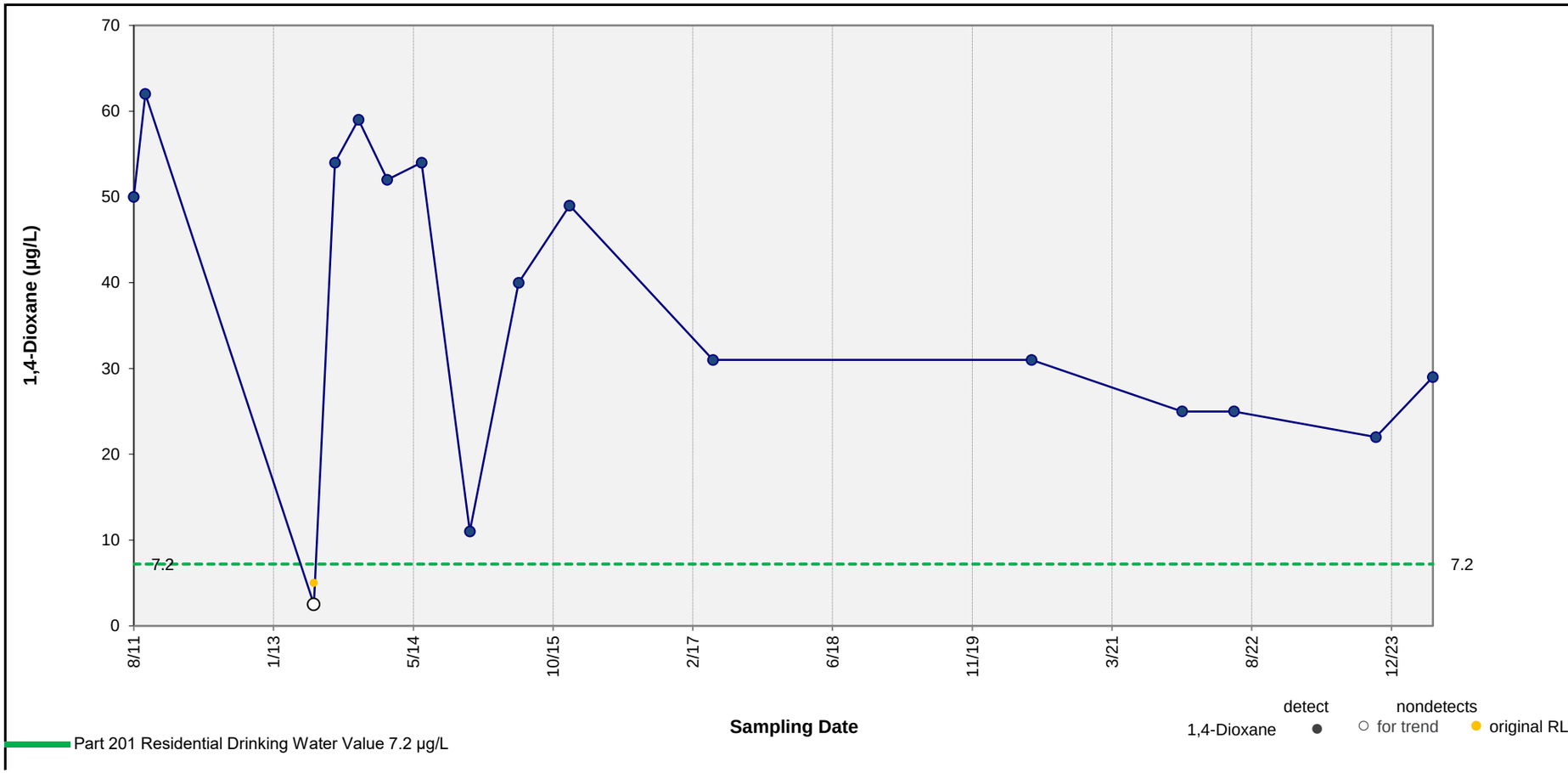
p value = 0.072 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – 1,4-Dioxane in Well MW-22-157

RACER Lansing

Figure H-47



Part 201 Groundwater Surface Water Interface criteria value of 280 µg/L is off-scale

Results of Mann-Kendall Test for Trend: **DECREASING TREND**

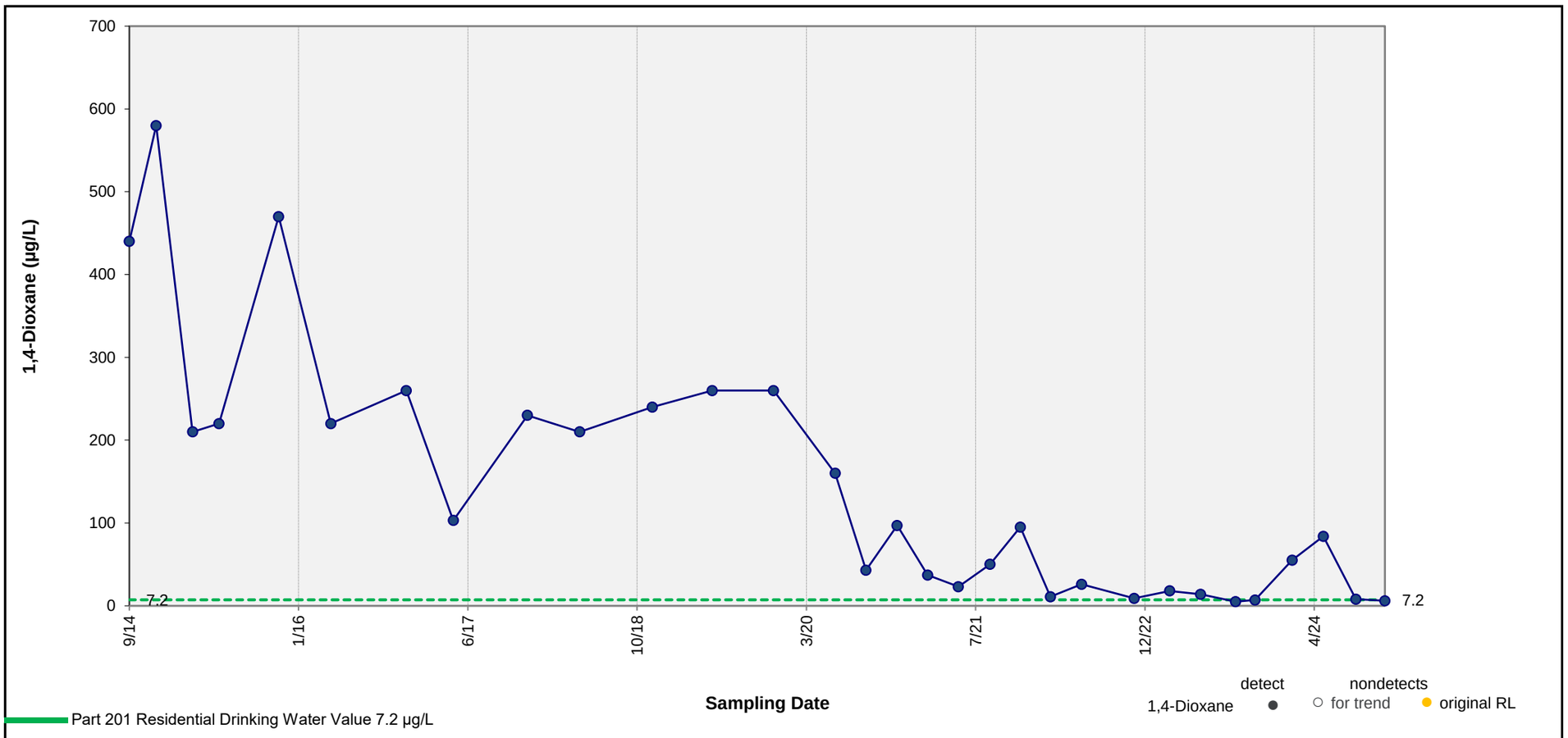
p value = 0.009 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – 1,4-Dioxane in Well P2-MW-04

RACER Lansing

Figure H-48



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

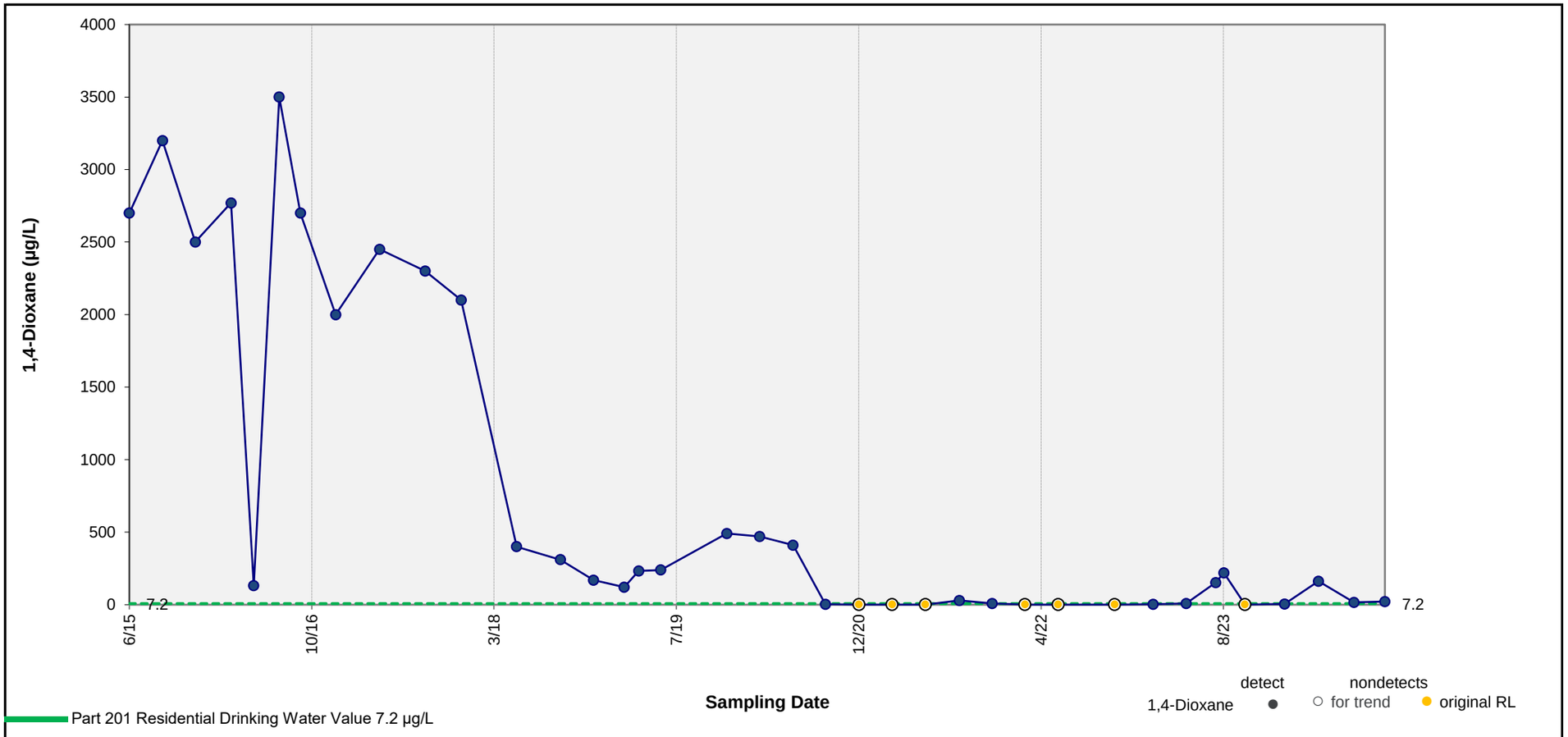
p value = <0.001 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – 1,4-Dioxane in Well PW-14-02

RACER Lansing

Figure H-49



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

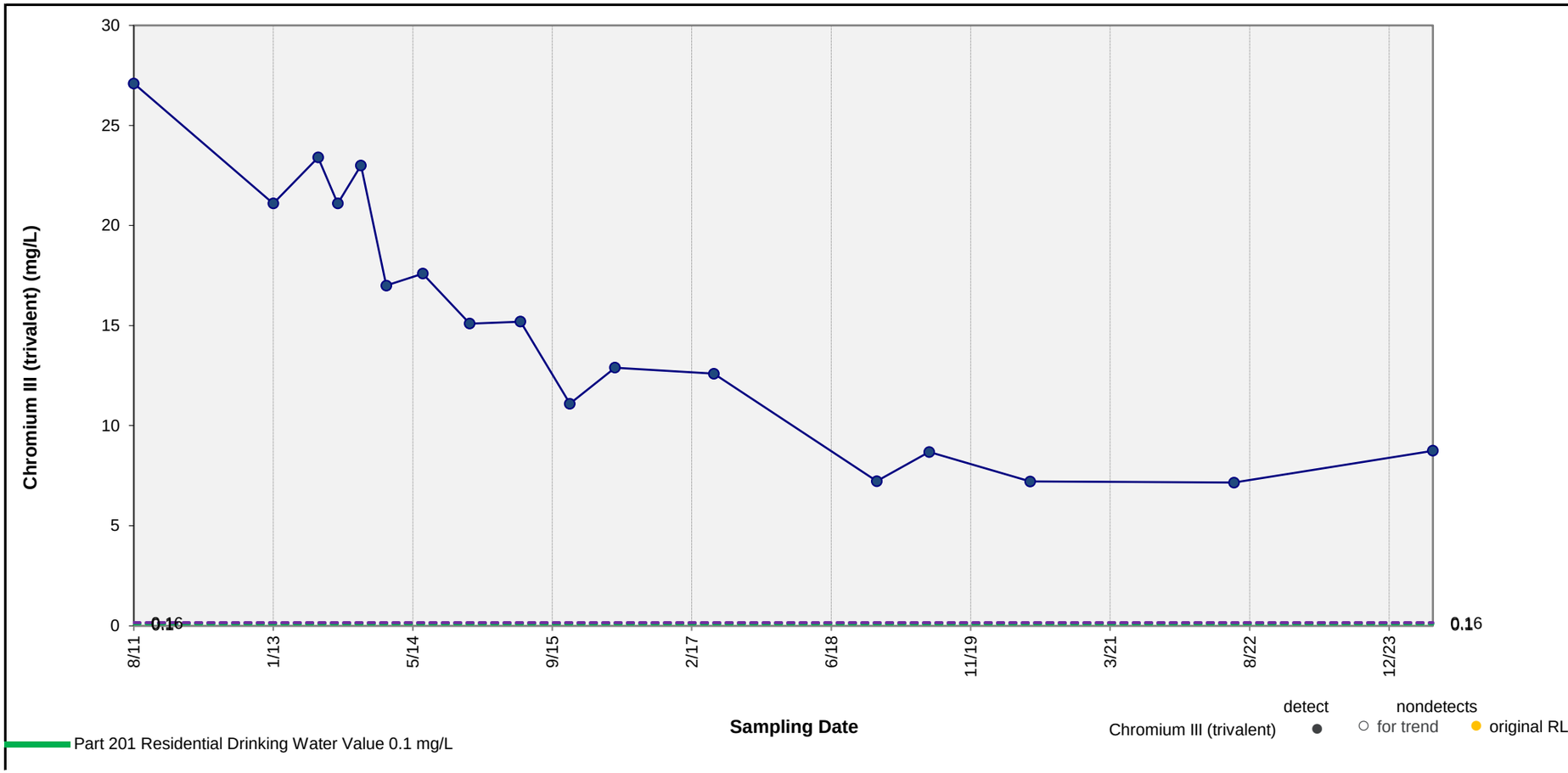
p value = <0.001 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – 1,4-Dioxane in Well TW-14-02

RACER Lansing

Figure H-50



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

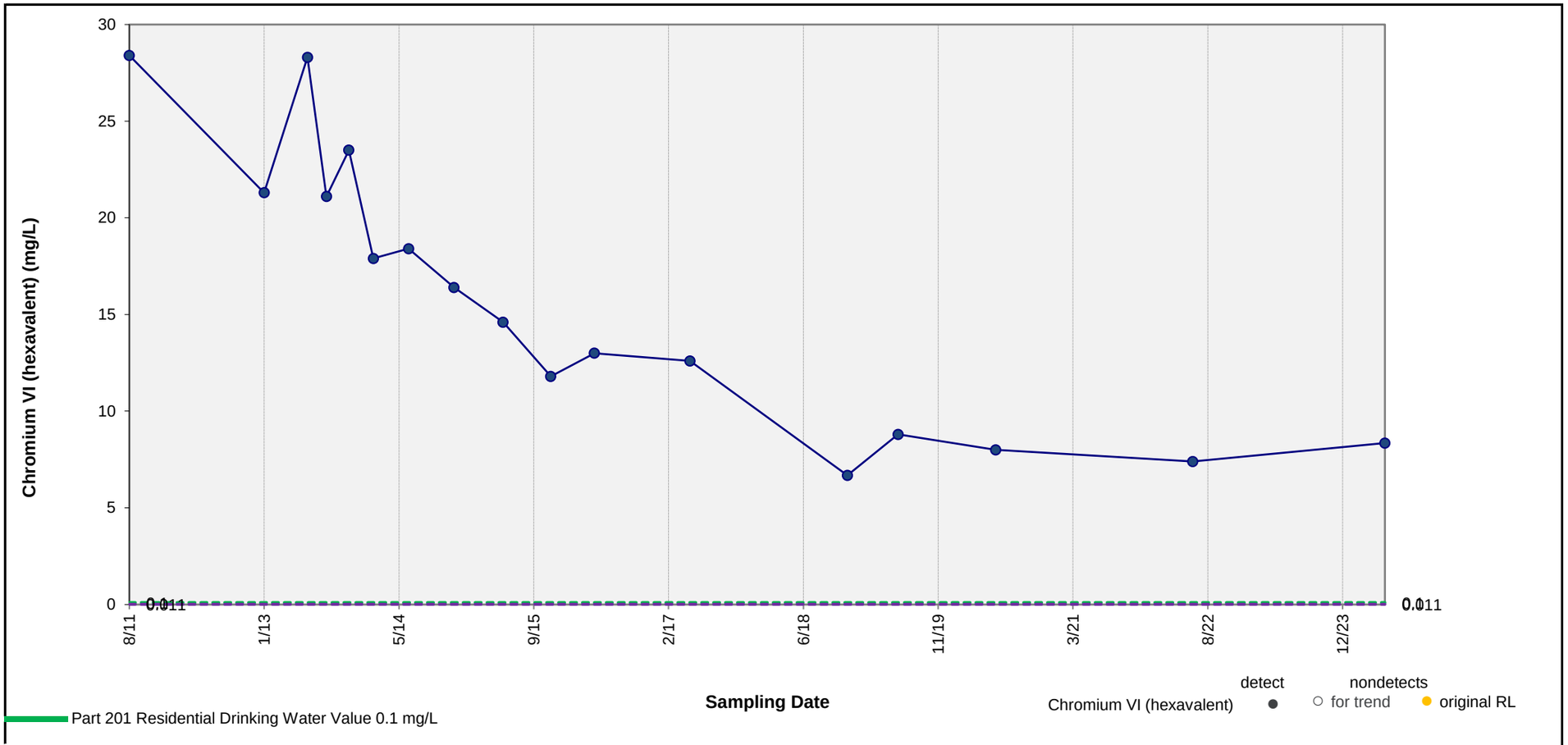
p value = <0.001 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Chromium III (trivalent) in Well CH-14-RO

RACER Lansing

Figure H-51



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

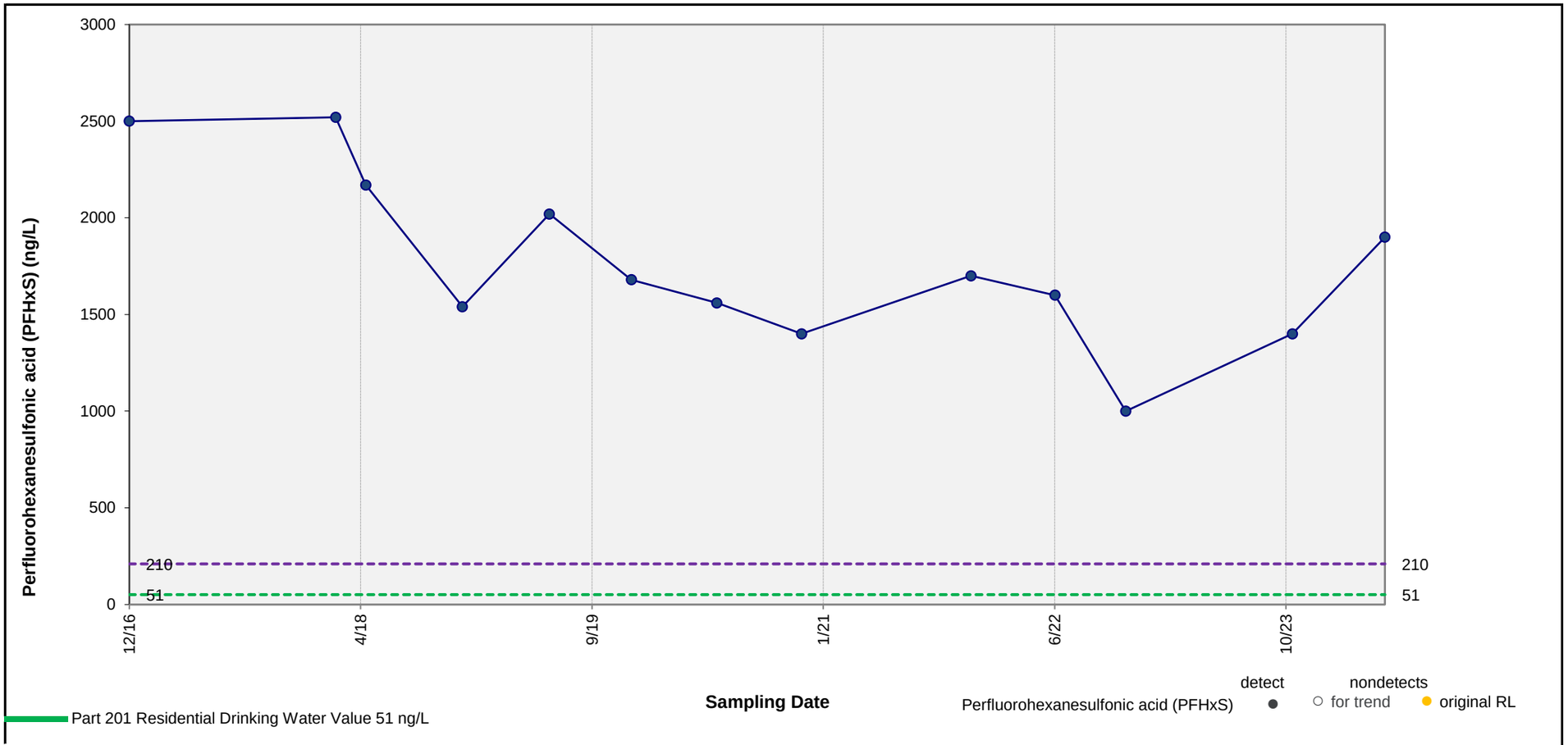
p value = <0.001 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Chromium VI (hexavalent) in Well CH-14-RO

RACER Lansing

Figure H-52



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

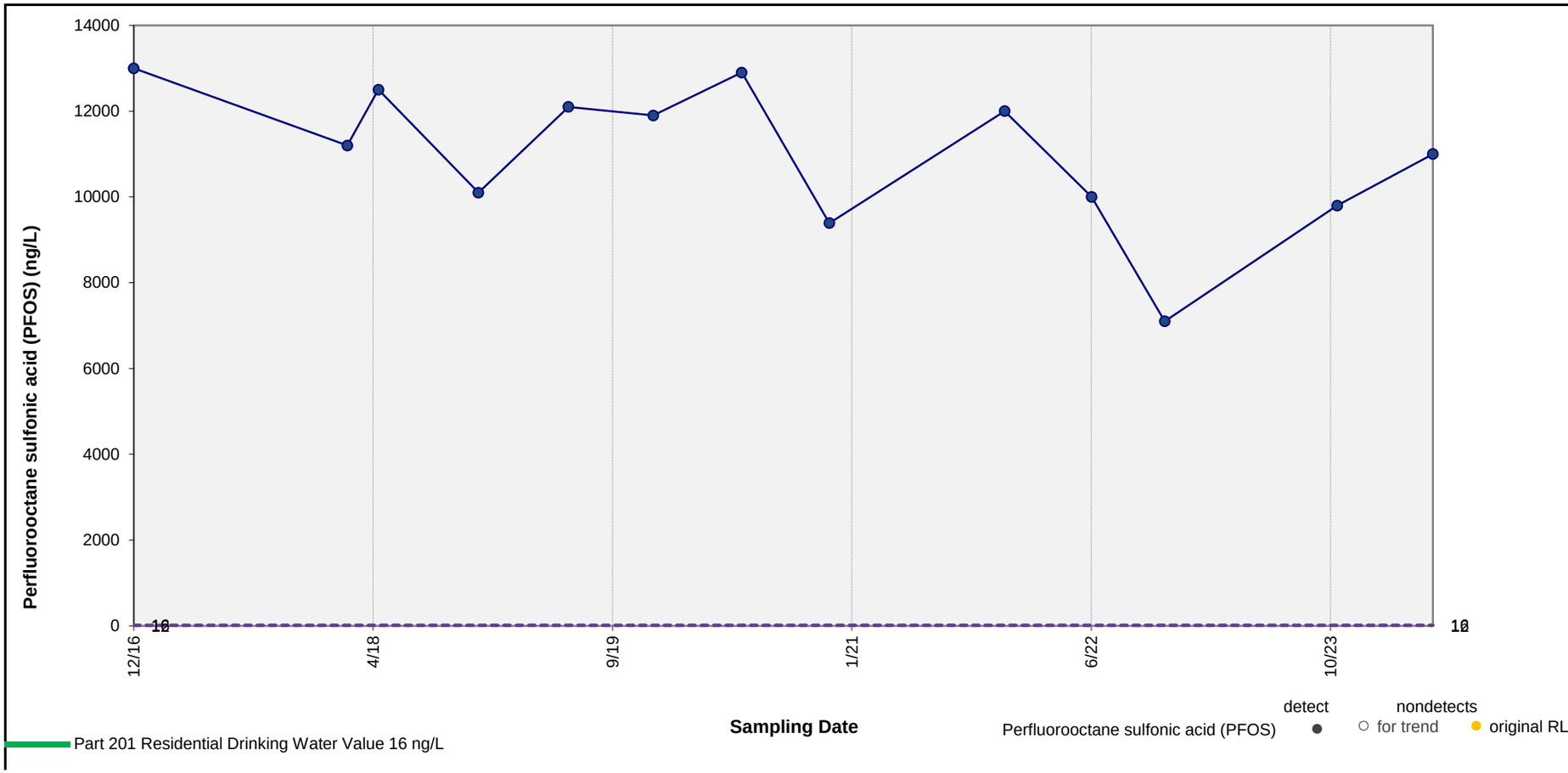
p value = 0.014 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Perfluorohexanesulfonic acid (PFHxS) in Well CH-14-RO

RACER Lansing

Figure H-53



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

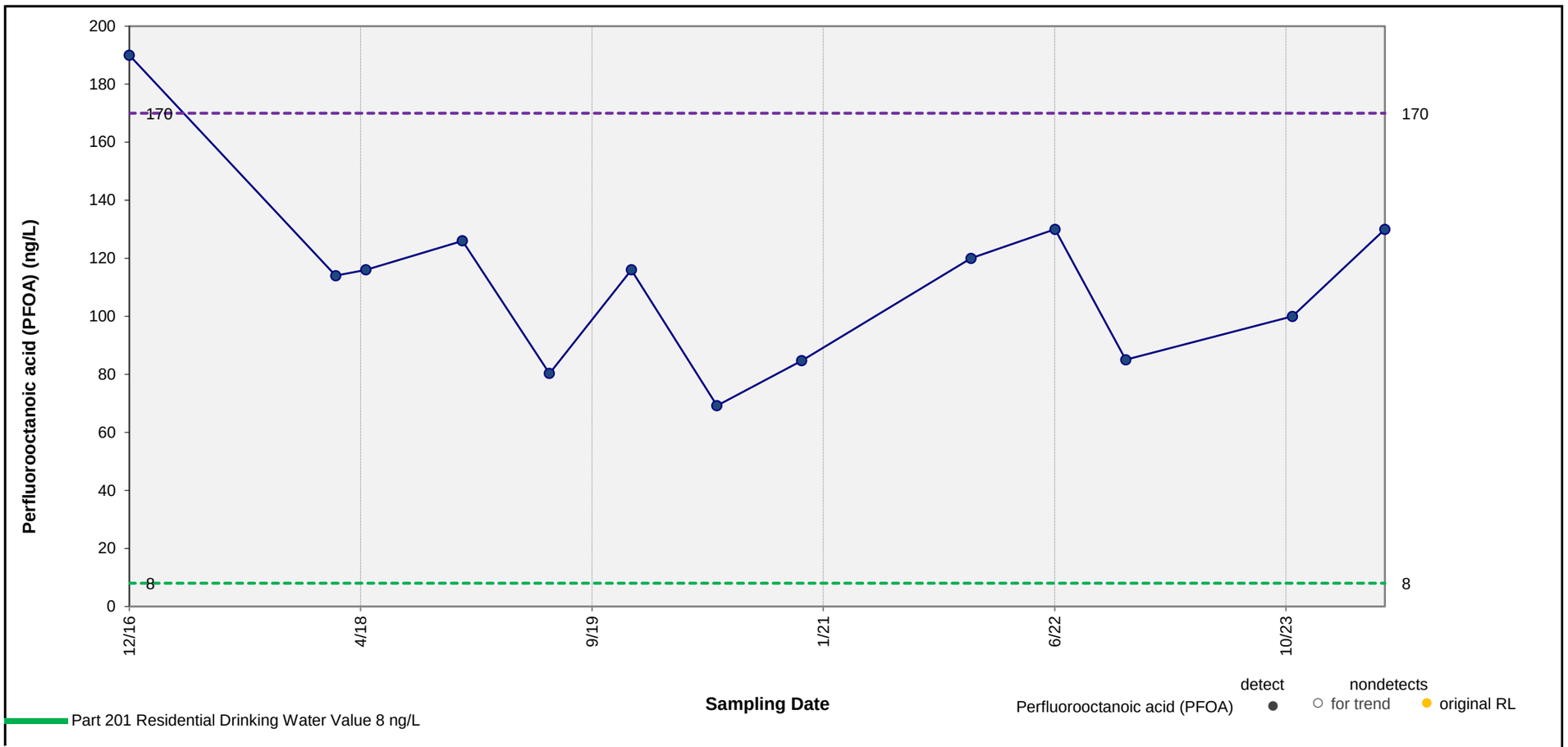
p value = 0.022 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Perfluorooctane sulfonic acid (PFOS) in Well CH-14-RO

RACER Lansing

Figure H-54



Results of Mann-Kendall Test for Trend: **No Significant Trend**

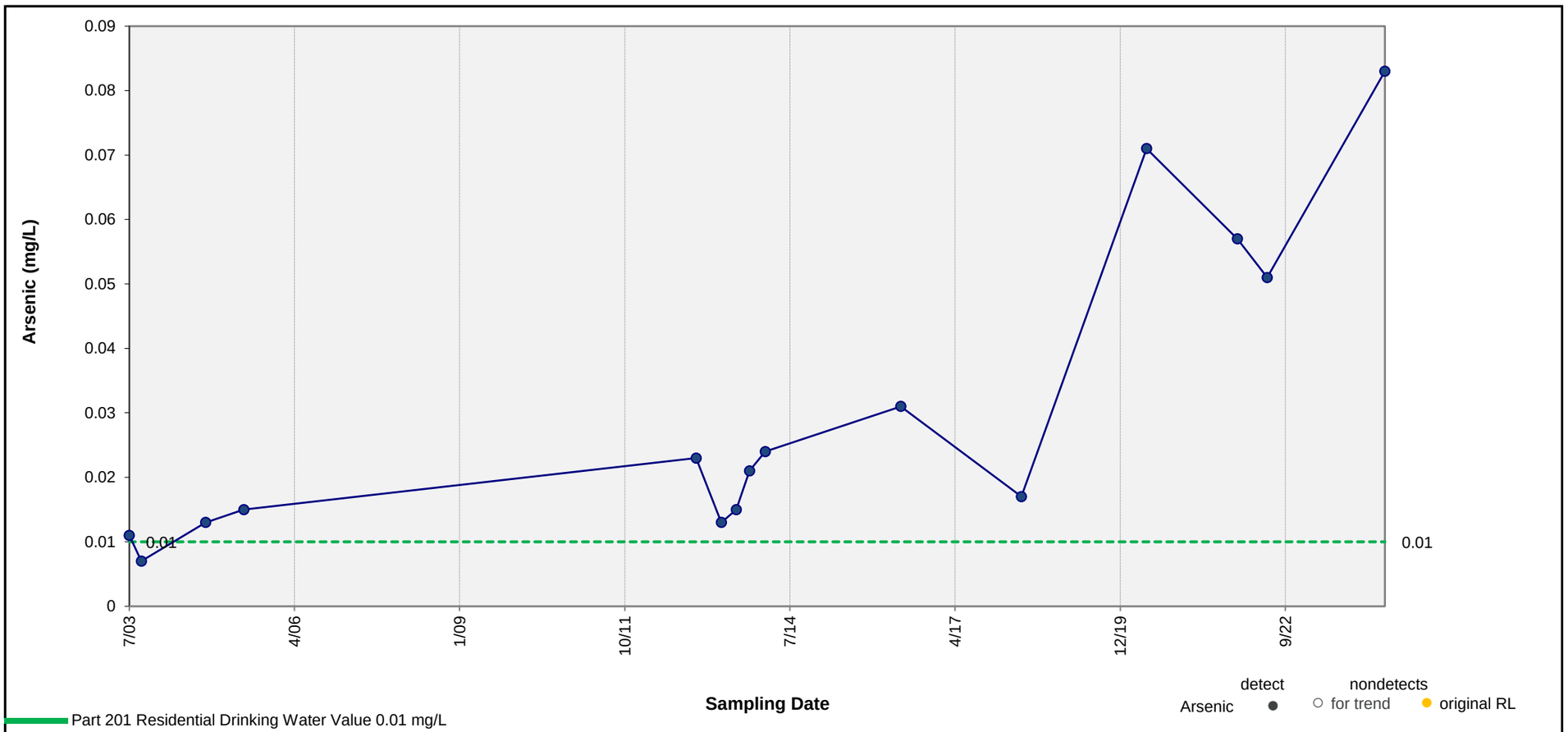
p value = 0.524 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Perfluorooctanoic acid (PFOA) in Well CH-14-RO

RACER Lansing

Figure H-55



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

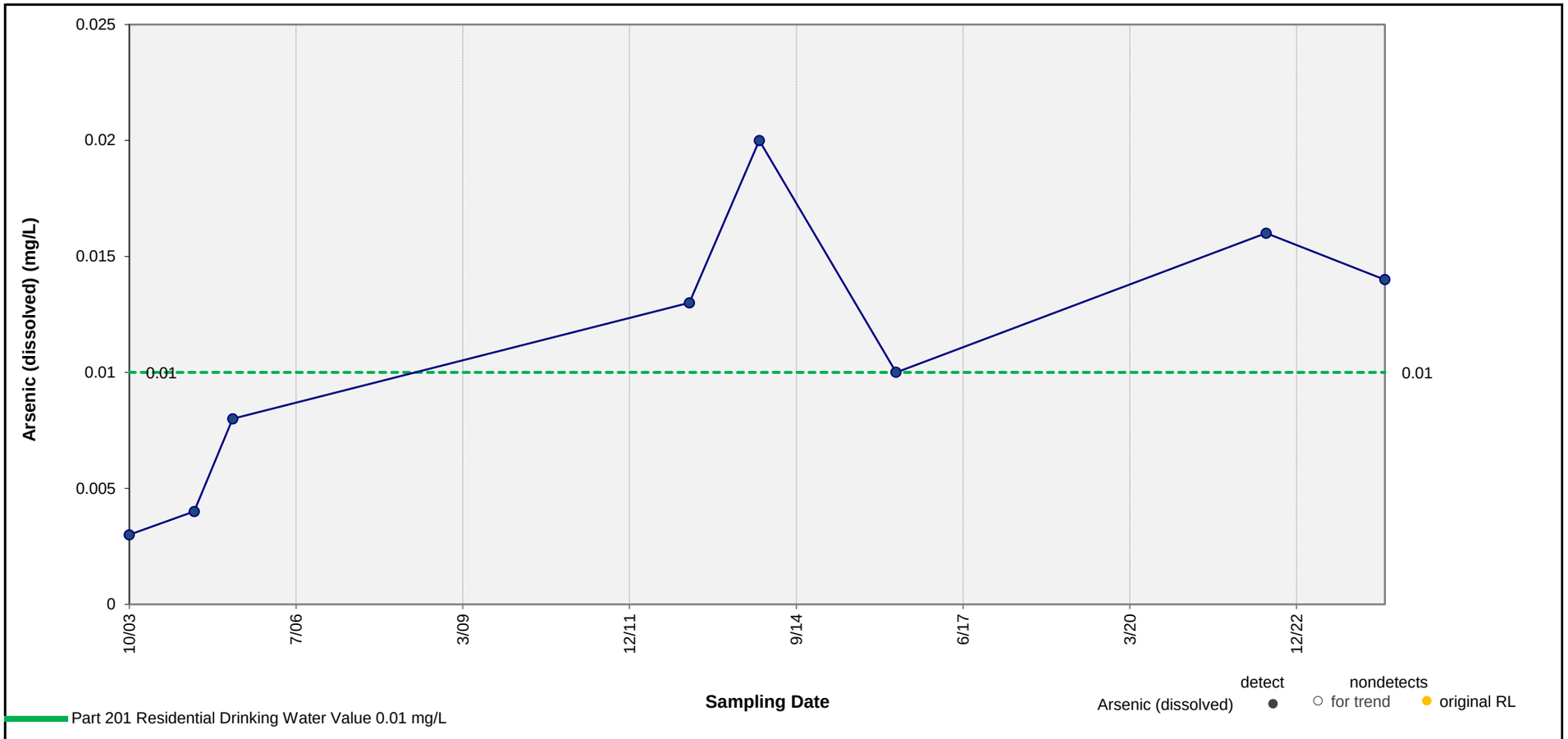
p value = <0.001 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Arsenic in Well MW-02-04(3)

RACER Lansing

Figure H-56



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

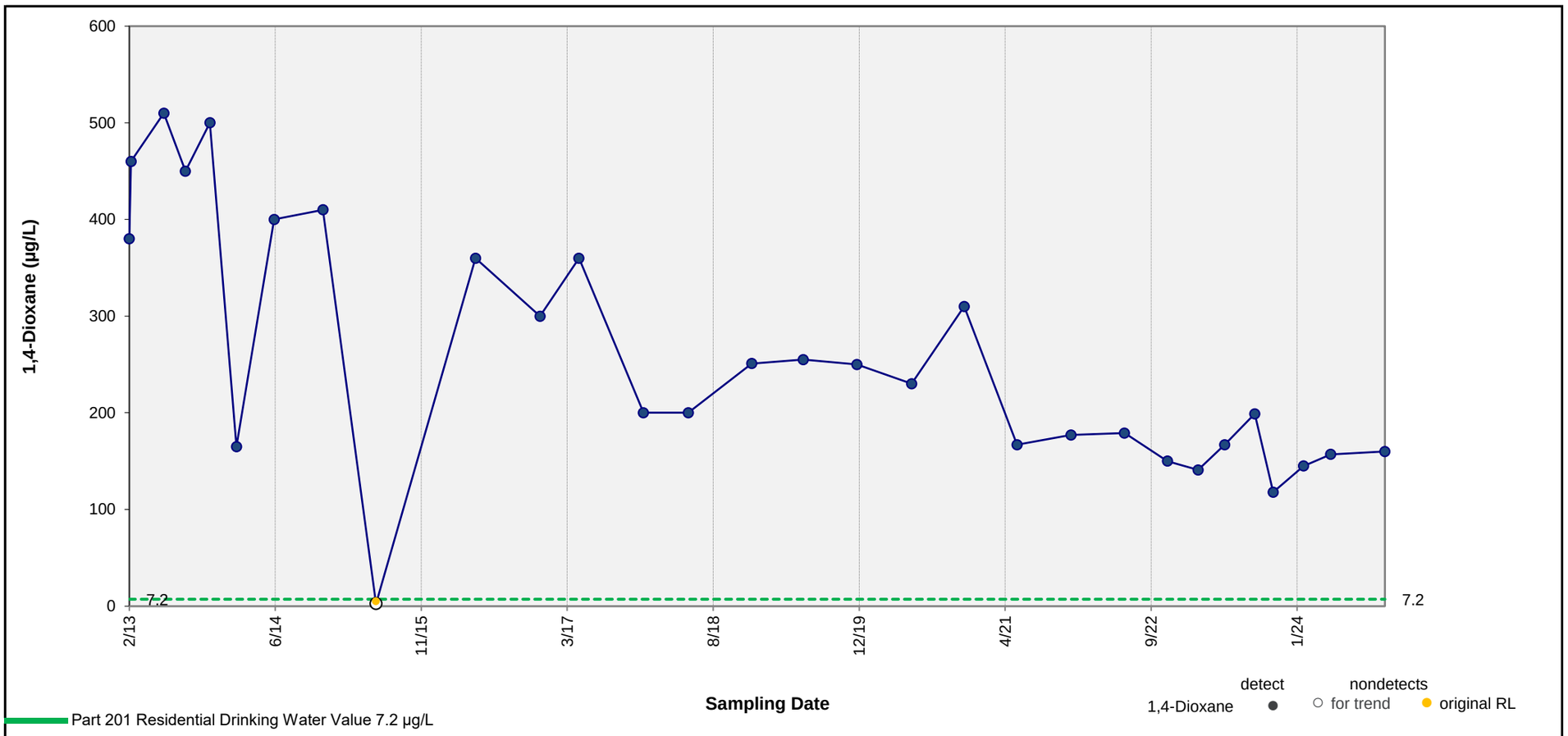
p value = 0.016 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Arsenic (dissolved) in Well MW-02-04(3)

RACER Lansing

Figure H-57



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

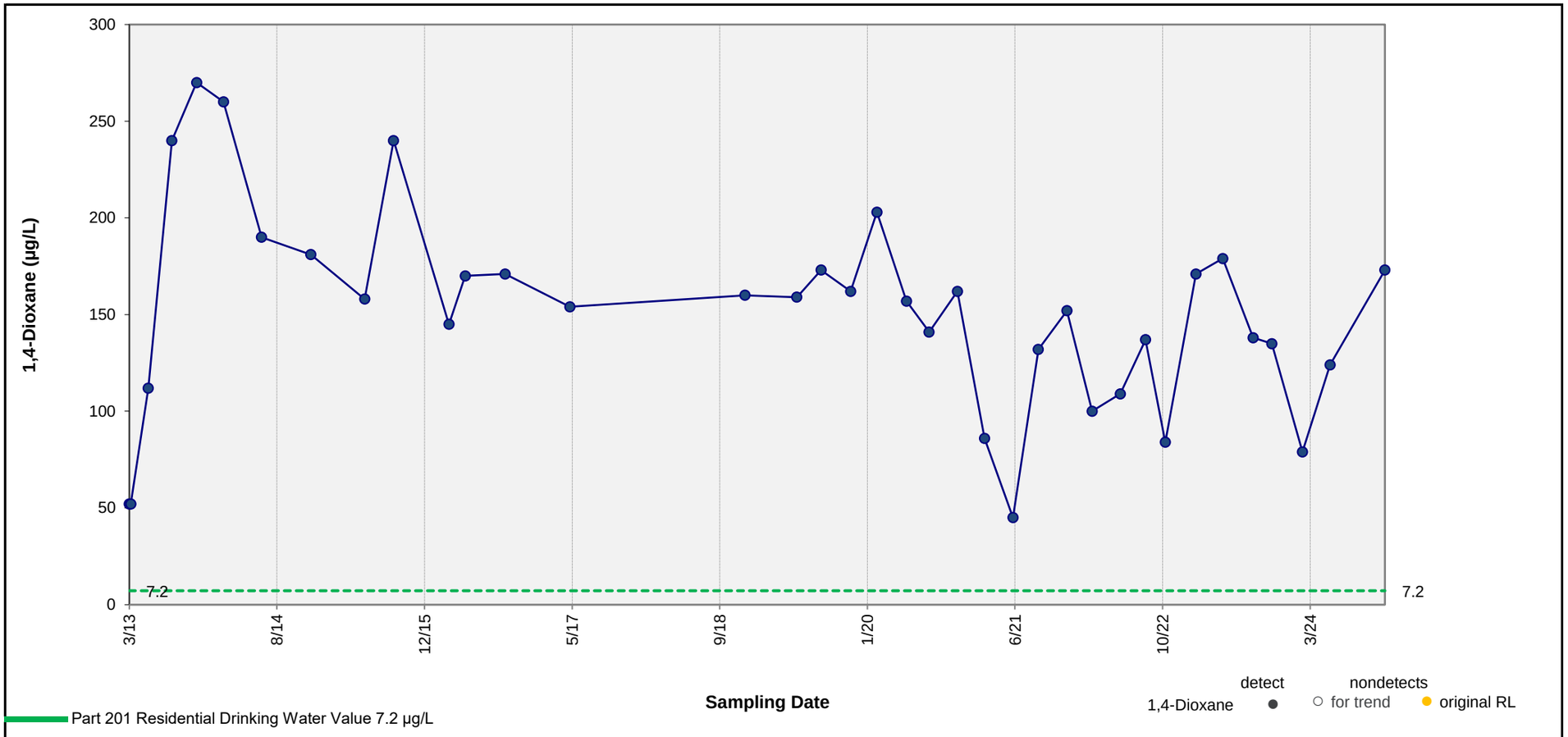
p value = <0.001 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – 1,4-Dioxane in Well MW-12-21

RACER Lansing

Figure H-58



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

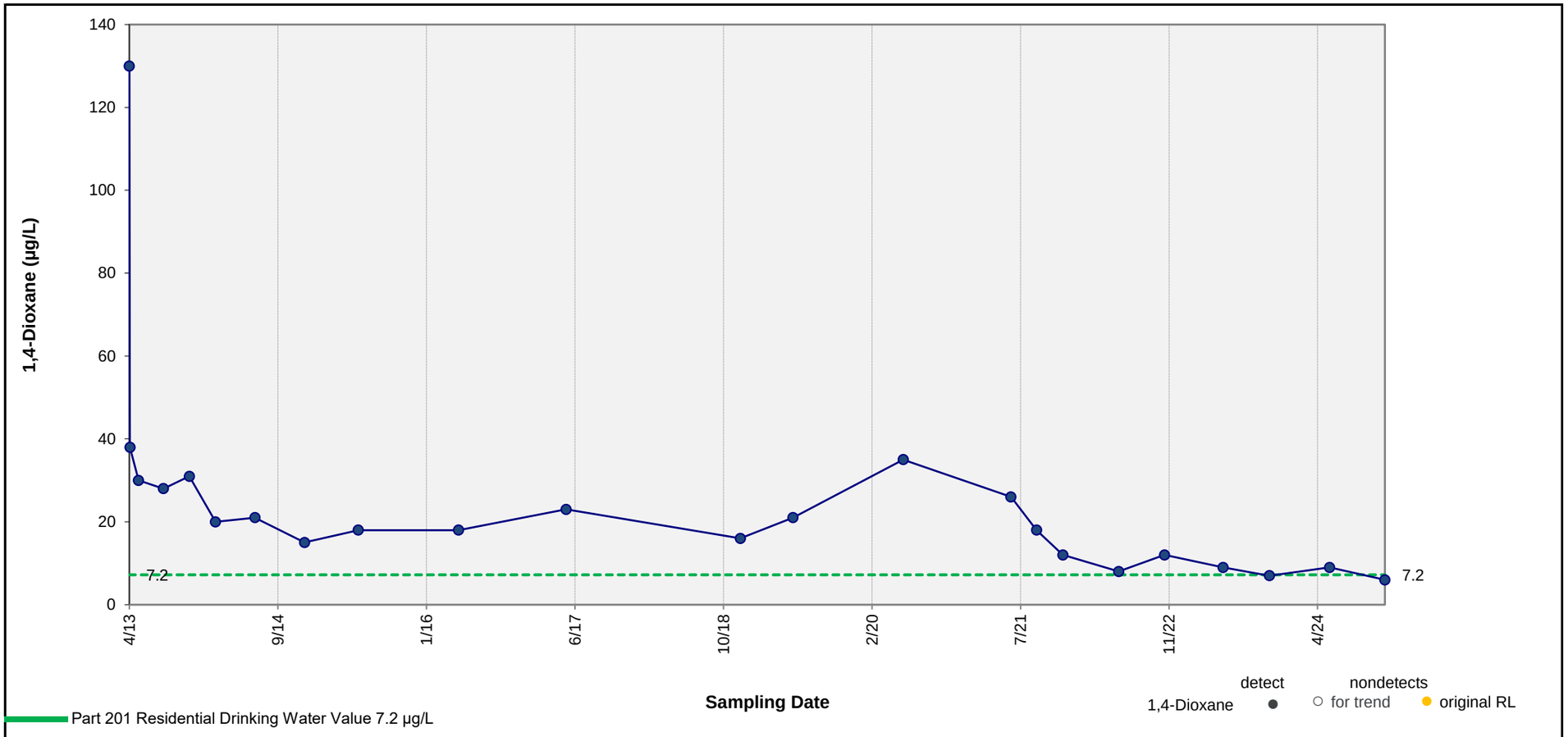
p value = 0.014 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – 1,4-Dioxane in Well MW-13-22

RACER Lansing

Figure H-59



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

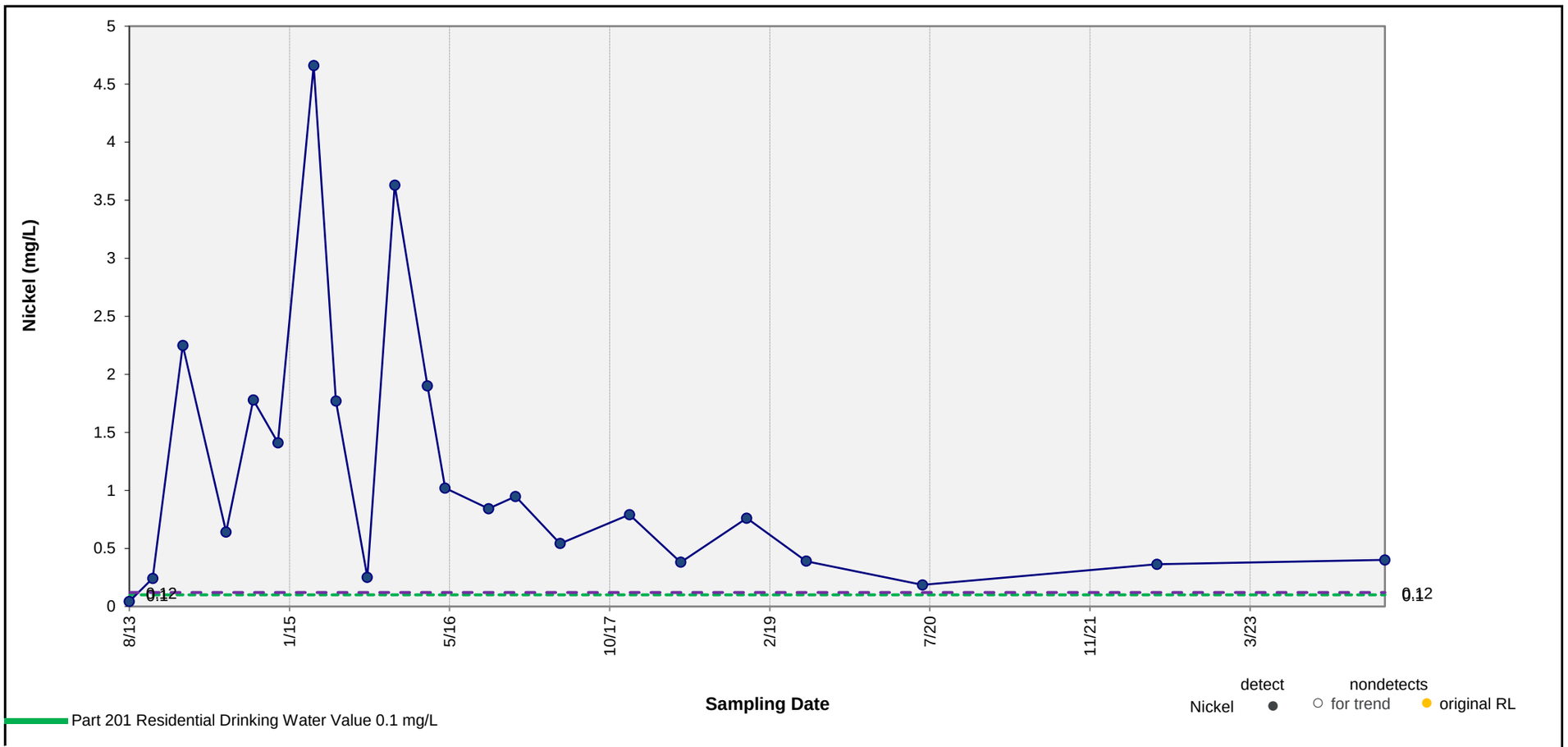
p value = <0.001 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – 1,4-Dioxane in Well MW-13-29

RACER Lansing

Figure H-60



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

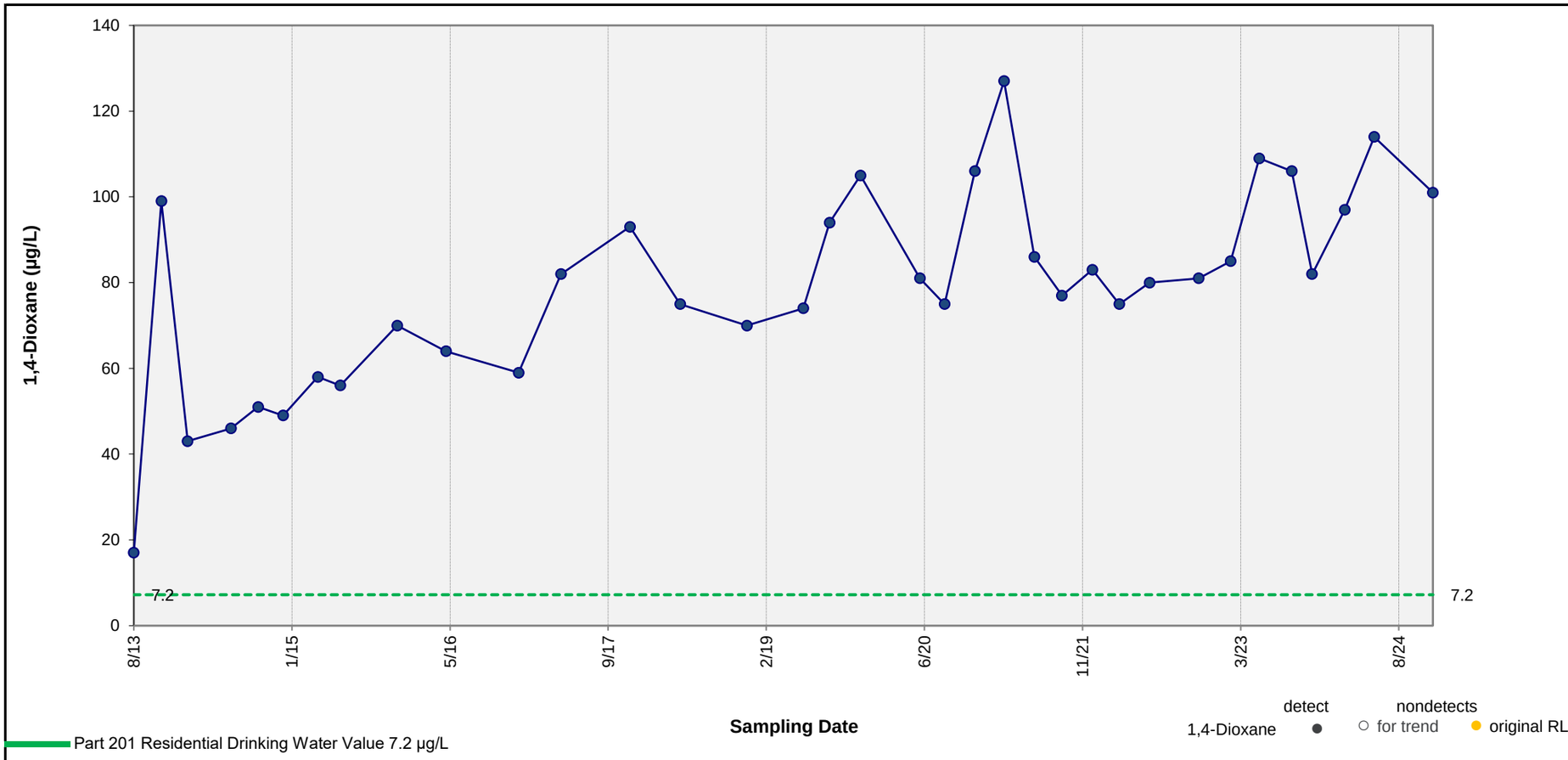
p value = 0.040 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Nickel in Well MW-13-32

RACER Lansing

Figure H-61



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

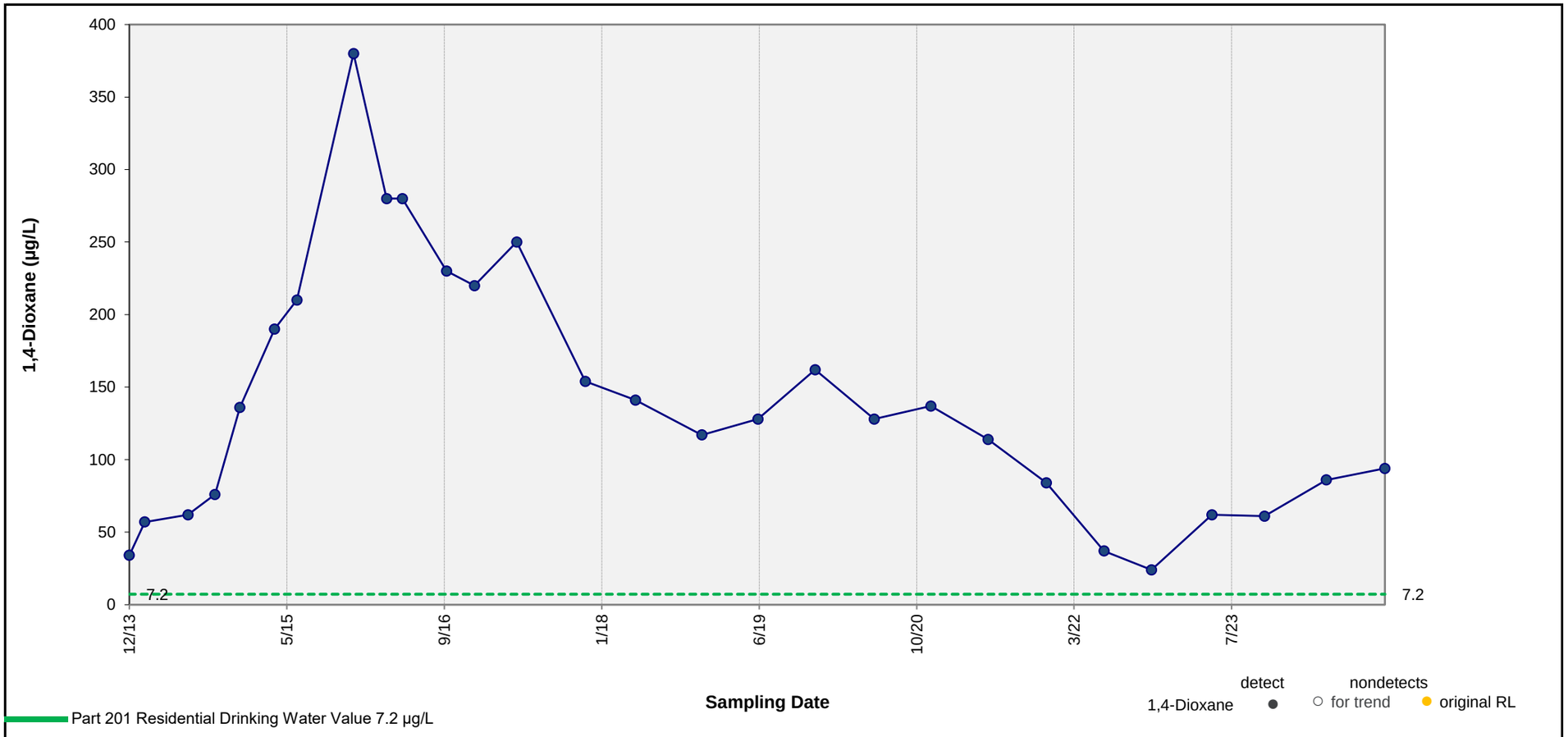
p value = <0.001 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – 1,4-Dioxane in Well MW-13-34

RACER Lansing

Figure H-62



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

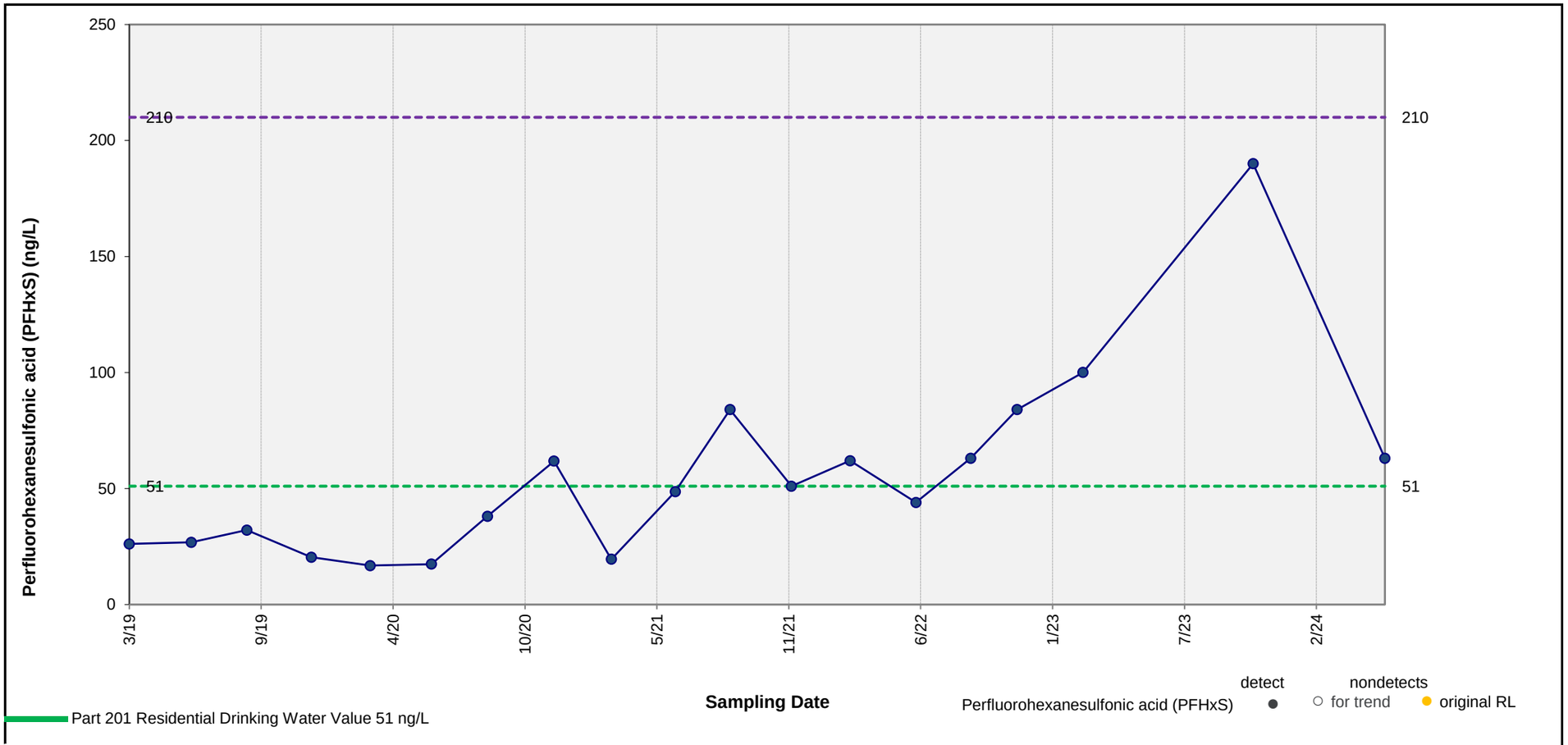
p value = 0.038 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – 1,4-Dioxane in Well MW-13-48

RACER Lansing

Figure H-63



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

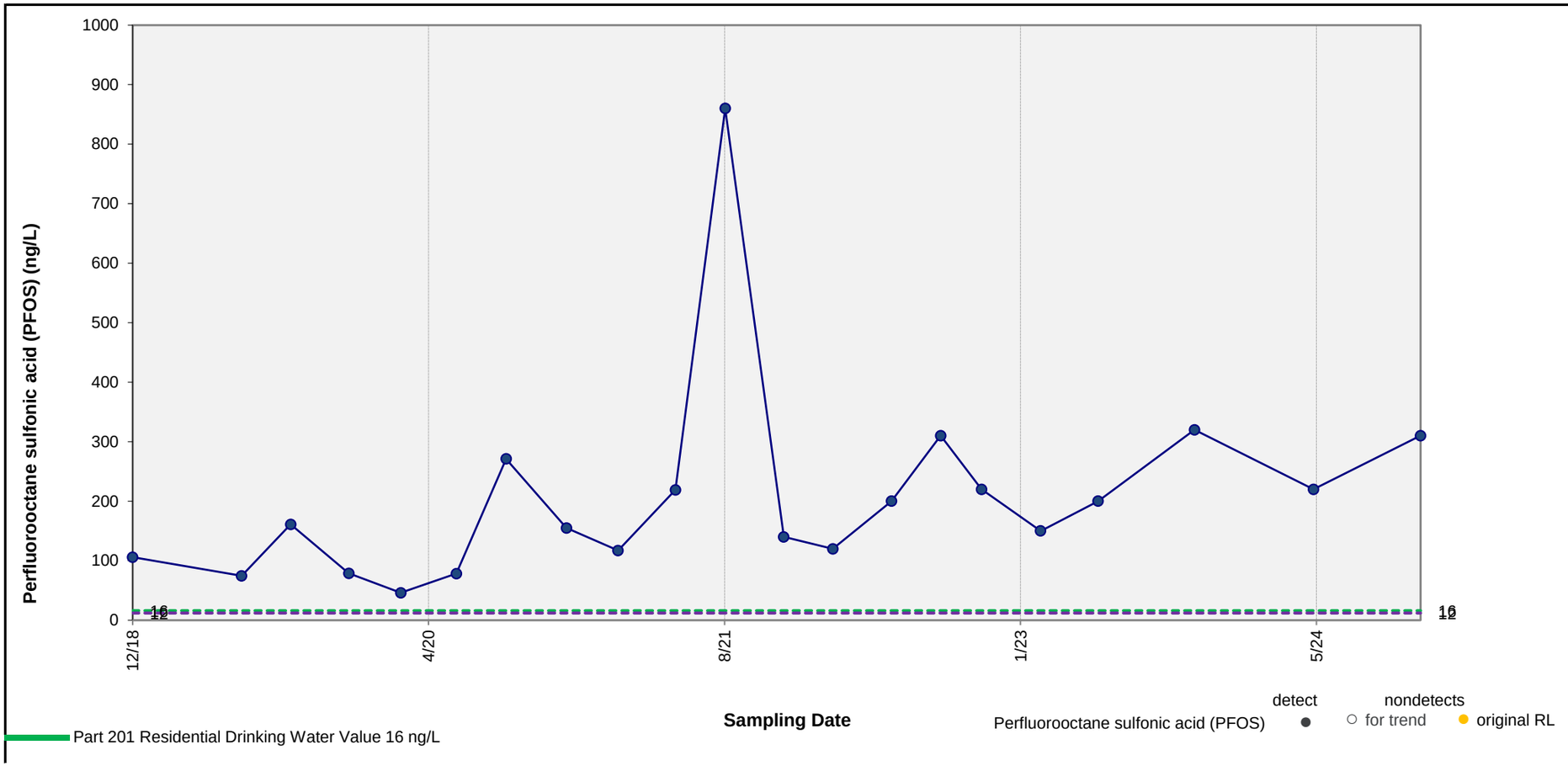
p value = <0.001 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Perfluorohexanesulfonic acid (PFHxS) in Well MW-18-103

RACER Lansing

Figure H-64



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

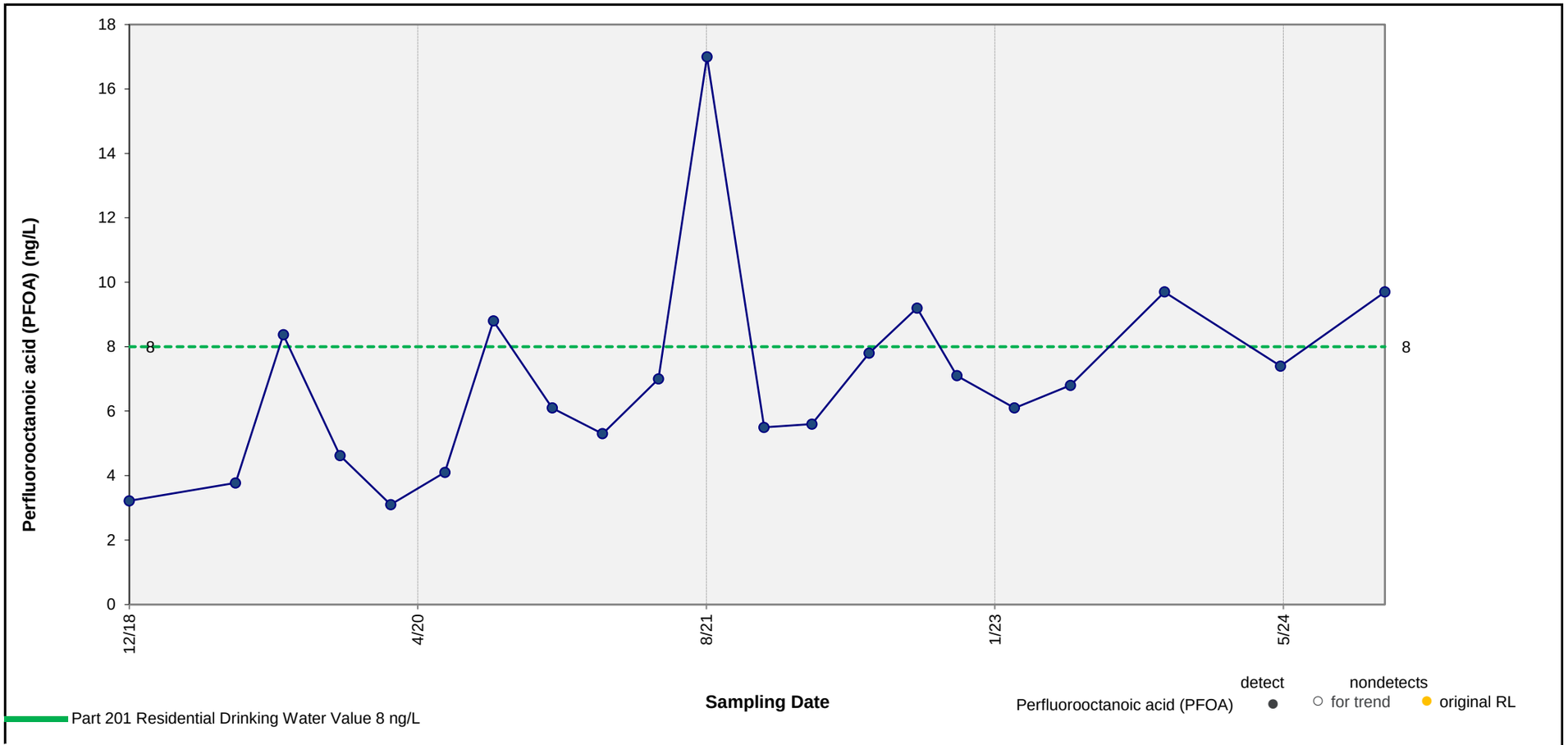
p value = 0.002 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Perfluorooctane sulfonic acid (PFOS) in Well MW-18-88

RACER Lansing

Figure H-65



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

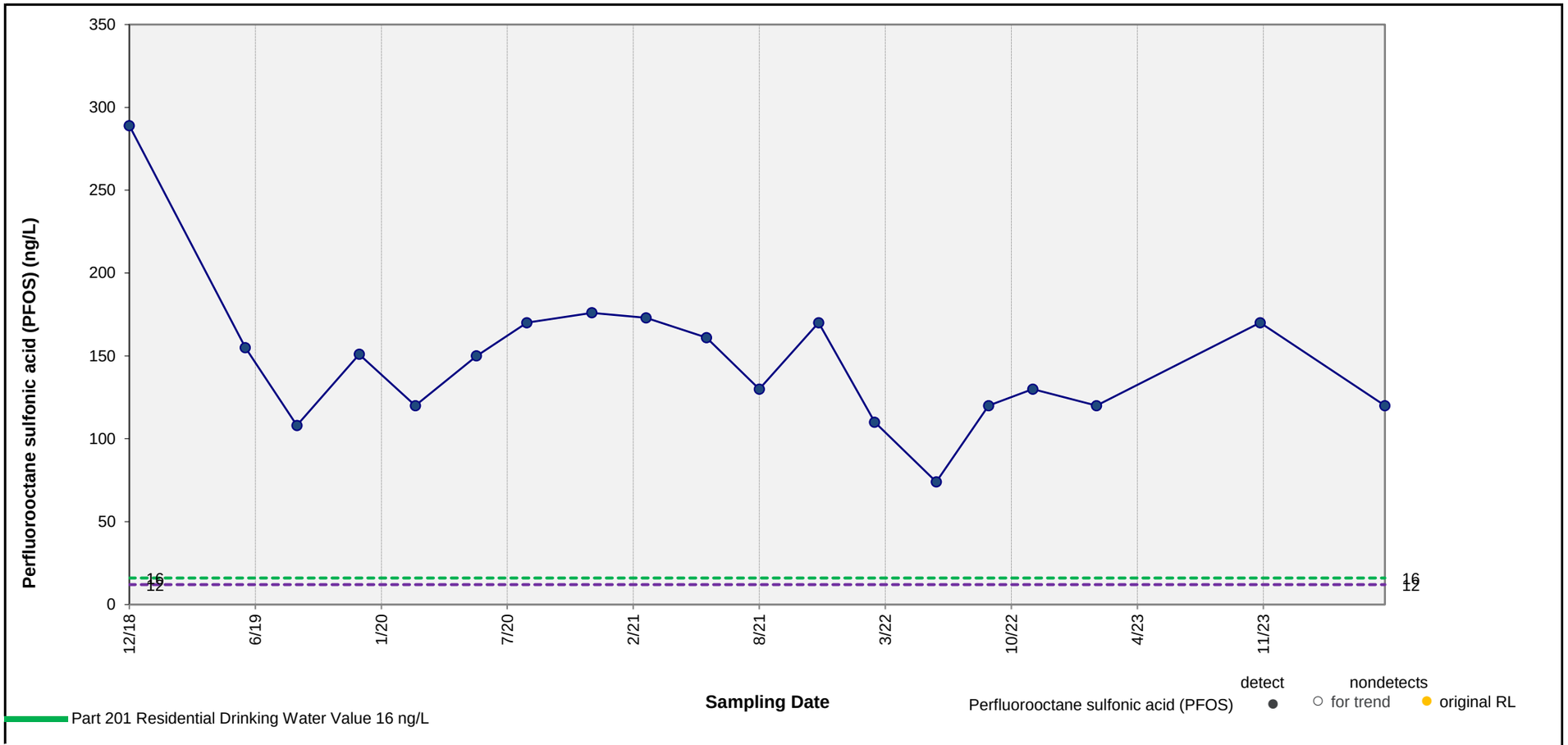
p value = 0.002 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Perfluorooctanoic acid (PFOA) in Well MW-18-88

RACER Lansing

Figure H-66



Results of Mann-Kendall Test for Trend: **No Significant Trend**

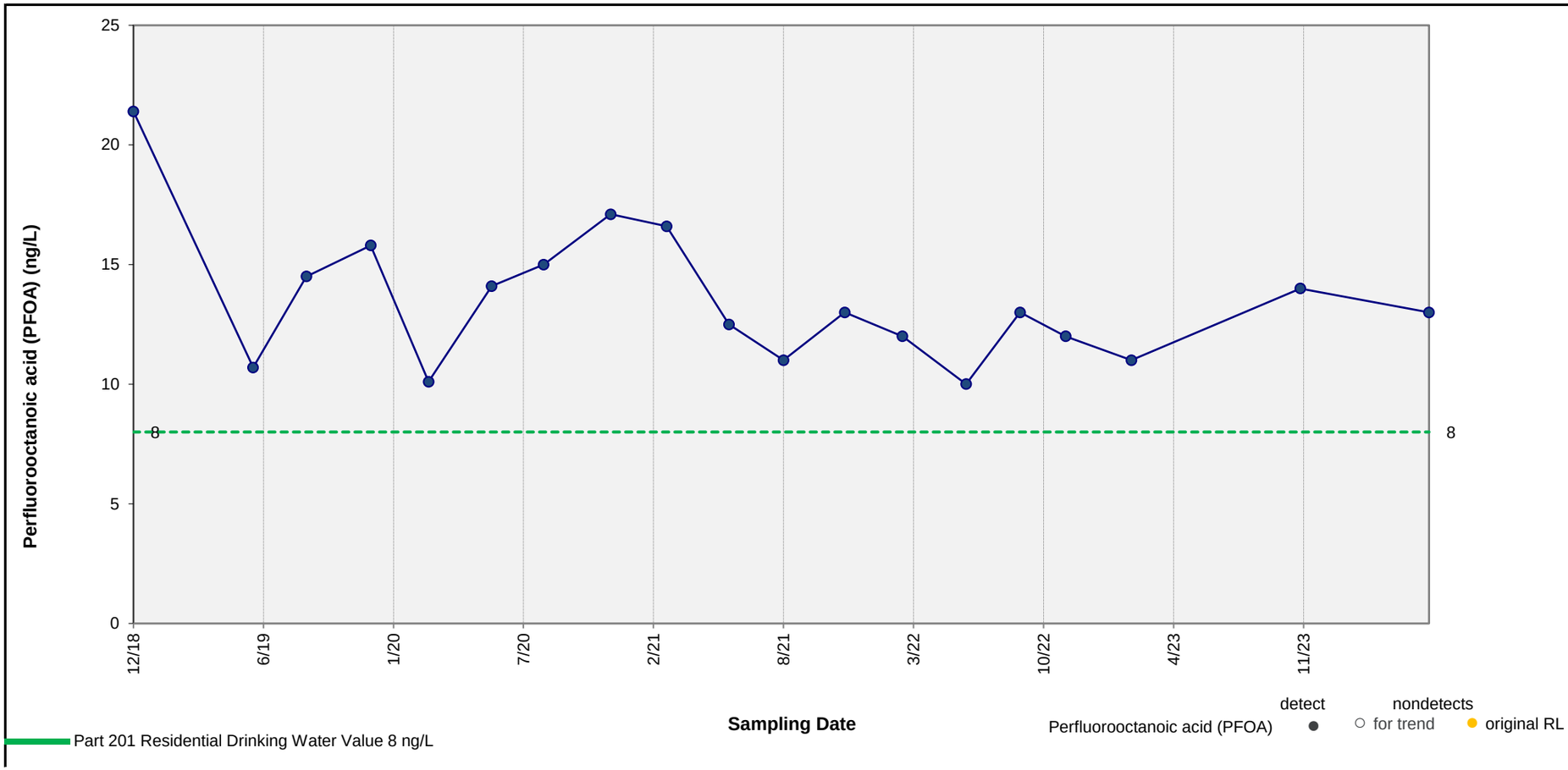
p value = 0.102 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Perfluorooctane sulfonic acid (PFOS) in Well MW-18-89

RACER Lansing

Figure H-67



Part 201 Groundwater Surface Water Interface criteria value of 170 ng/L is off-scale

Results of Mann-Kendall Test for Trend: **DECREASING TREND**

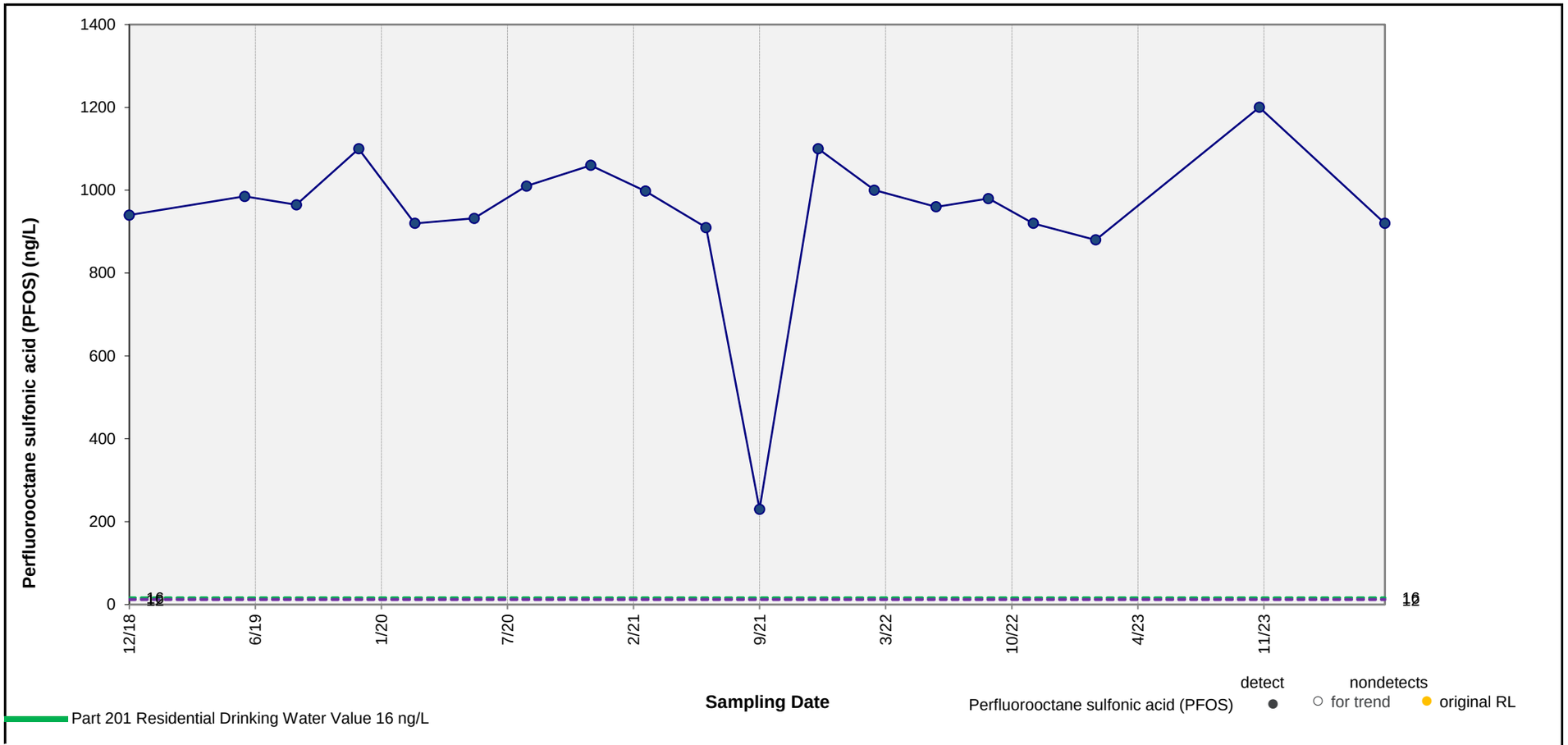
p value = 0.085 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Perfluorooctanoic acid (PFOA) in Well MW-18-89

RACER Lansing

Figure H-68



Results of Mann-Kendall Test for Trend: **No Significant Trend**

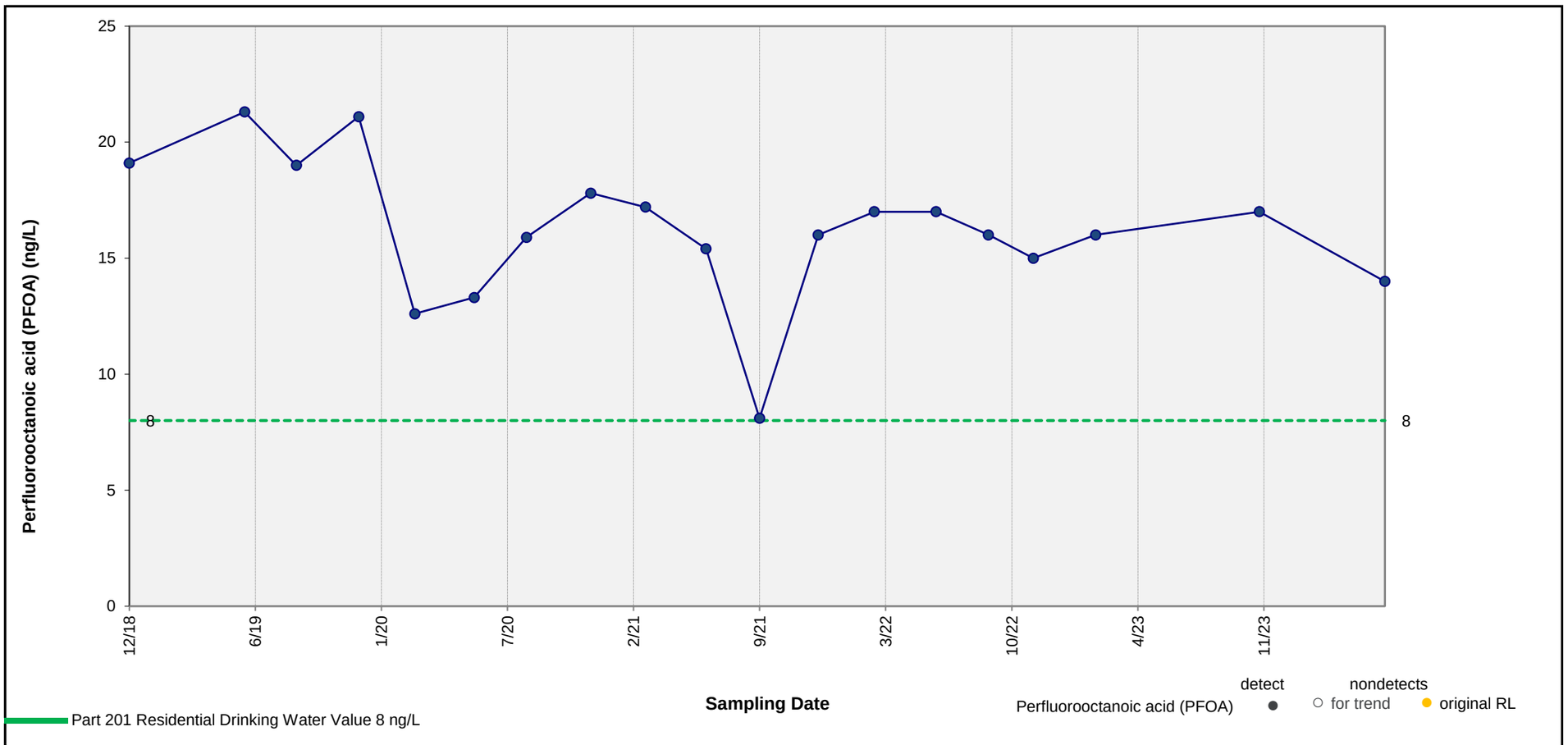
p value = 0.287 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Perfluorooctane sulfonic acid (PFOS) in Well MW-18-90

RACER Lansing

Figure H-69



Part 201 Groundwater Surface Water Interface criteria value of 170 ng/L is off-scale

Results of Mann-Kendall Test for Trend: **DECREASING TREND**

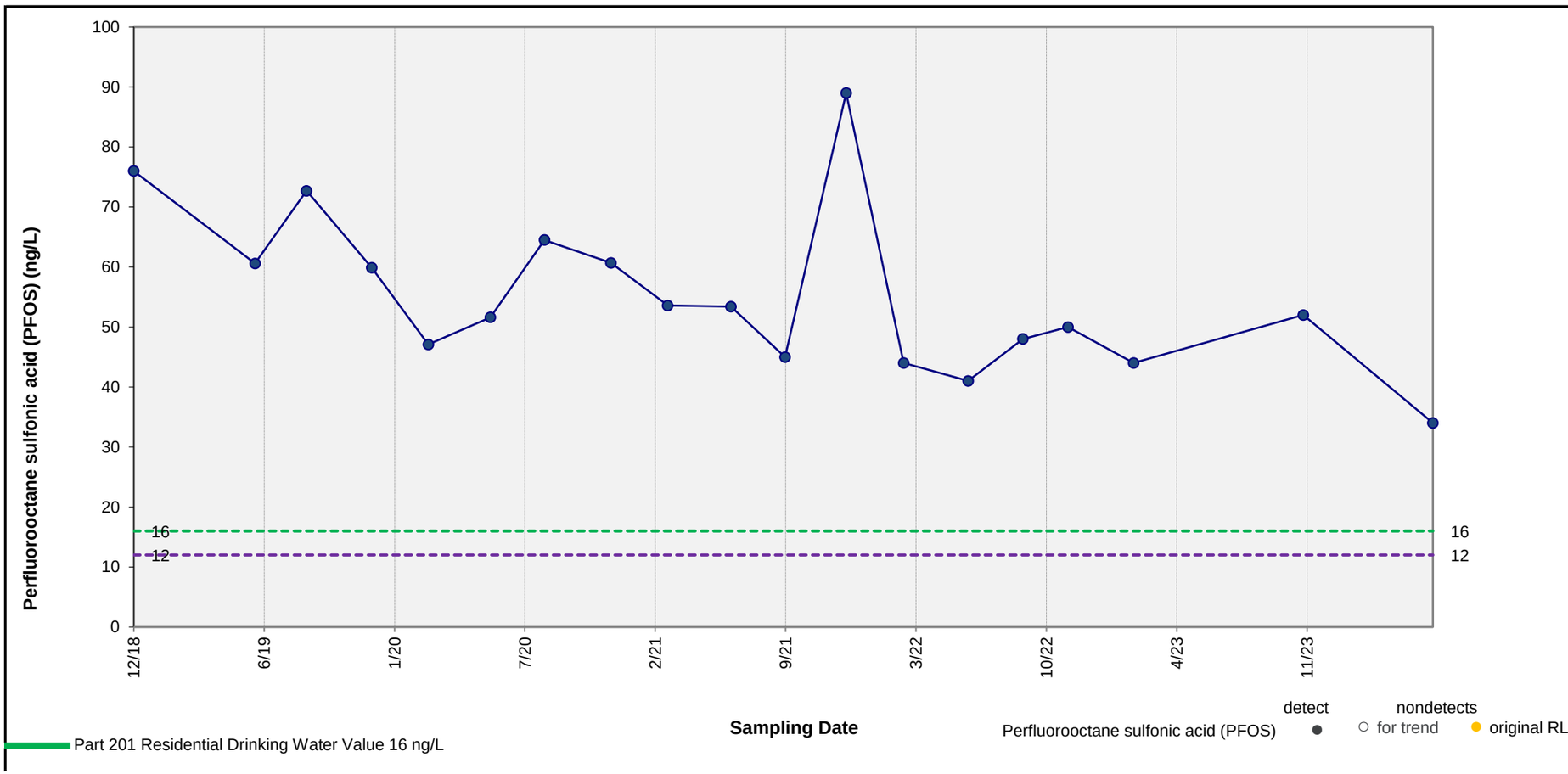
p value = 0.039 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Perfluorooctanoic acid (PFOA) in Well MW-18-90

RACER Lansing

Figure H-70



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

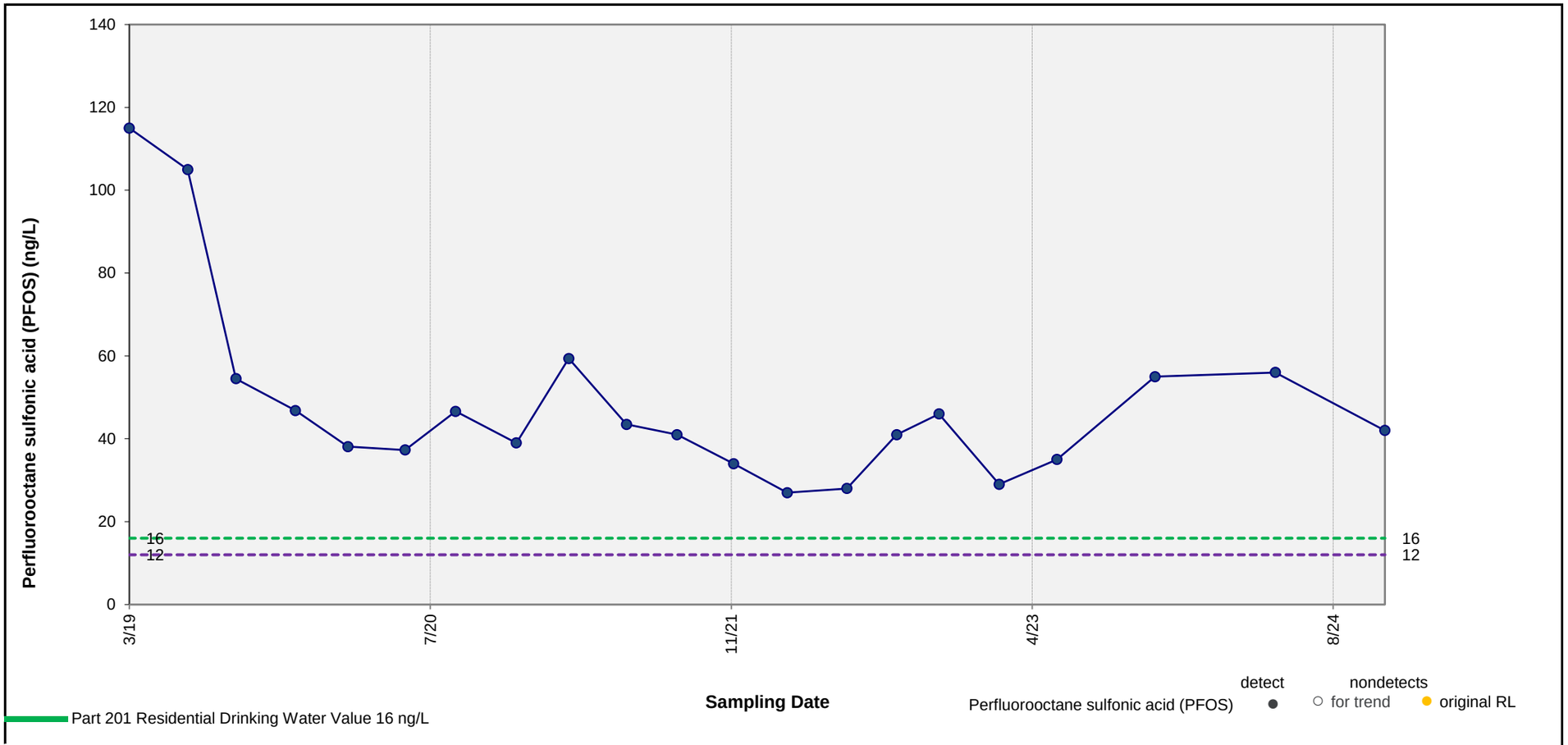
p value = 0.002 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Perfluorooctane sulfonic acid (PFOS) in Well MW-18-91

RACER Lansing

Figure H-71



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

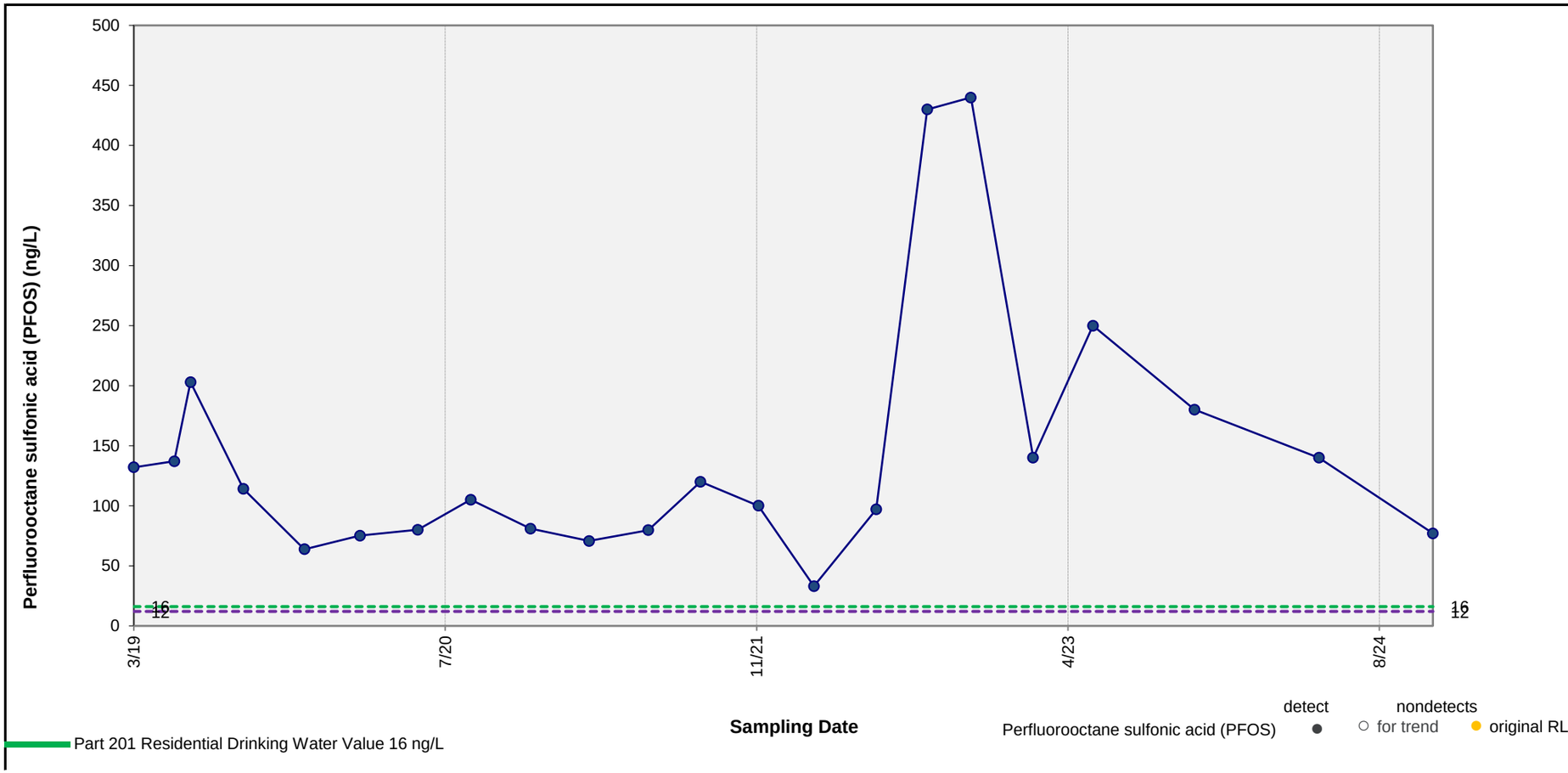
p value = 0.065 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Perfluorooctane sulfonic acid (PFOS) in Well MW-18-95

RACER Lansing

Figure H-72



Results of Mann-Kendall Test for Trend: **No Significant Trend**

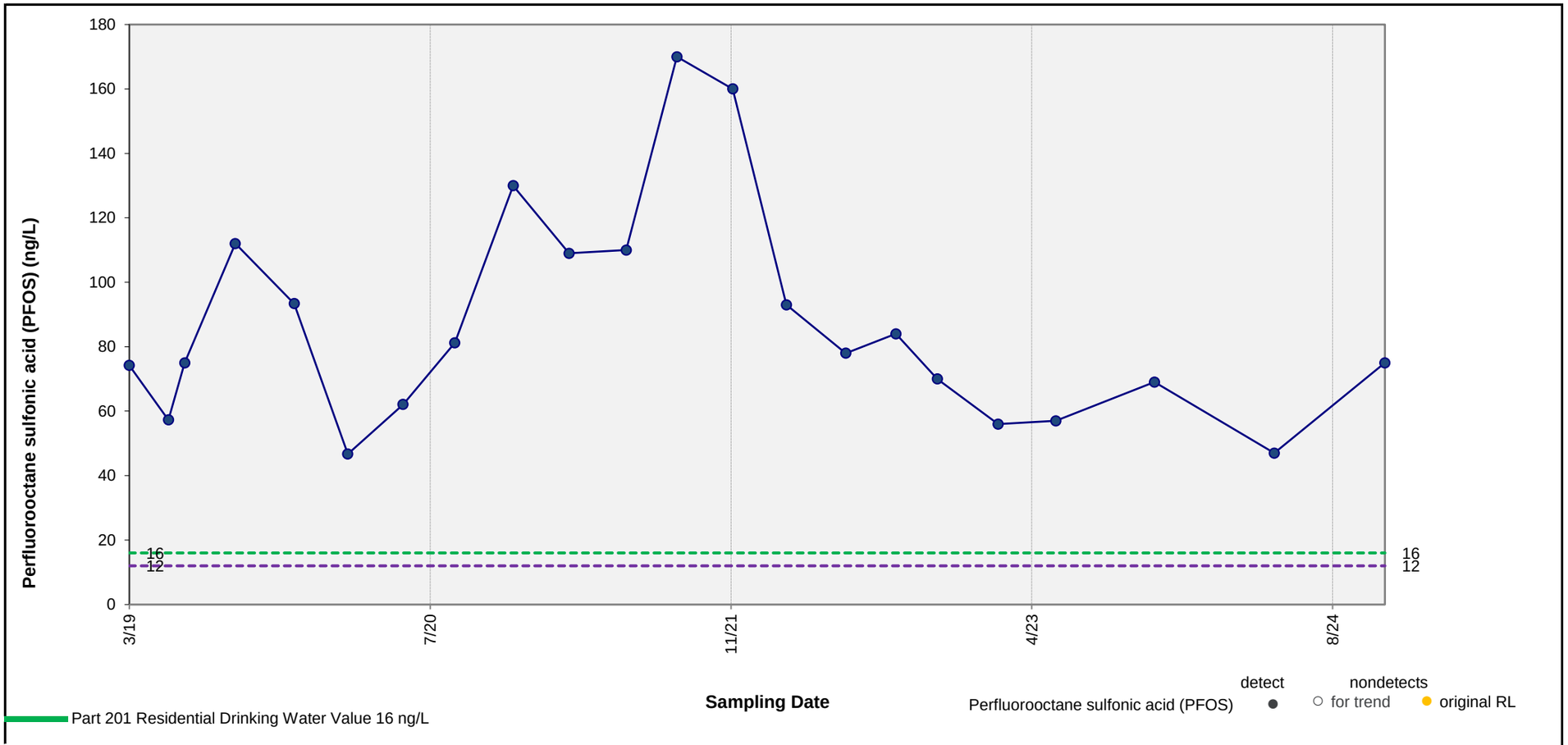
p value = 0.191 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Perfluorooctane sulfonic acid (PFOS) in Well MW-18-98

RACER Lansing

Figure H-73



Results of Mann-Kendall Test for Trend: **No Significant Trend**

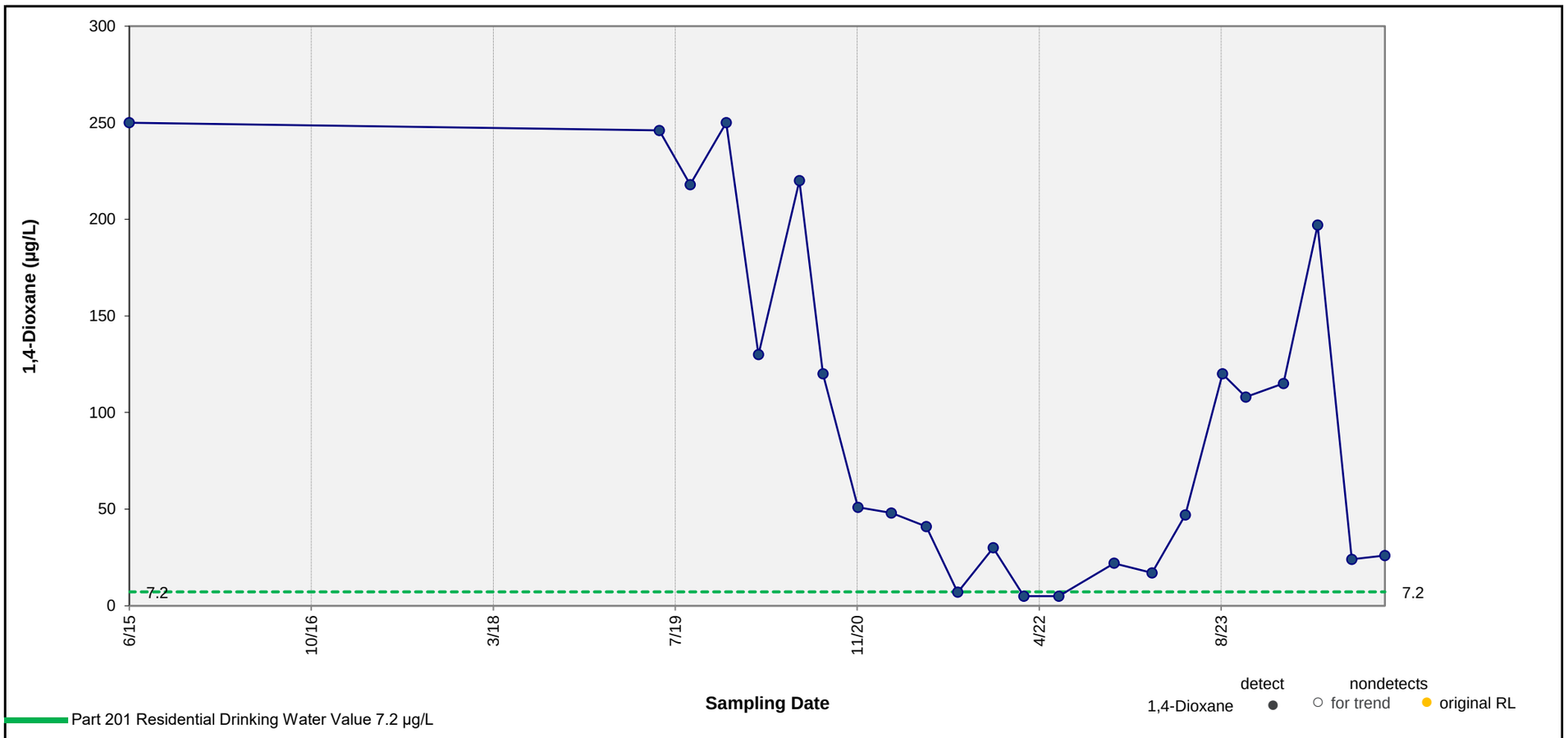
p value = 0.191 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Perfluorooctane sulfonic acid (PFOS) in Well MW-18-99

RACER Lansing

Figure H-74



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

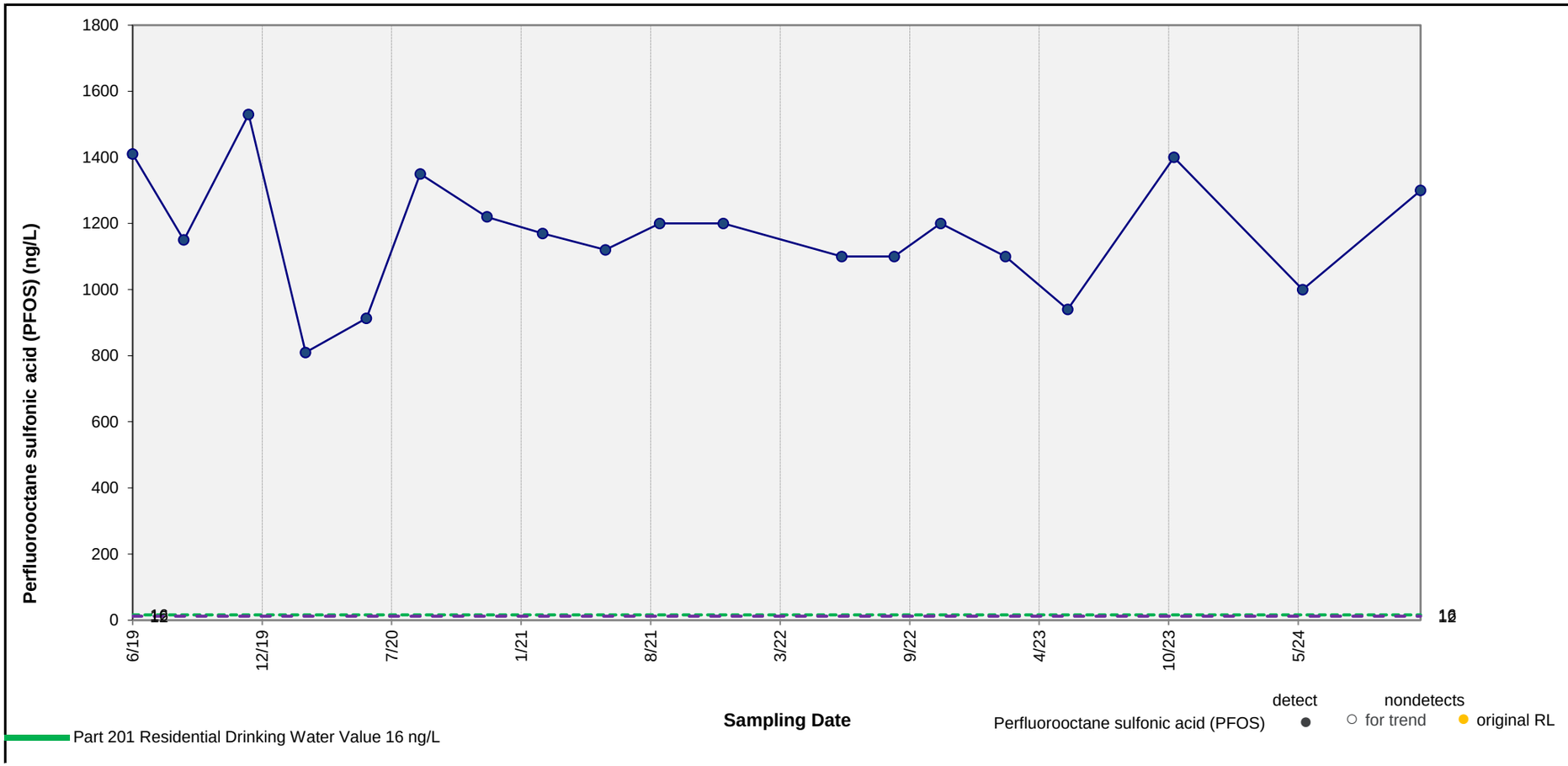
p value = 0.004 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – 1,4-Dioxane in Well TW-15-11

RACER Lansing

Figure H-75



Results of Mann-Kendall Test for Trend: **No Significant Trend**

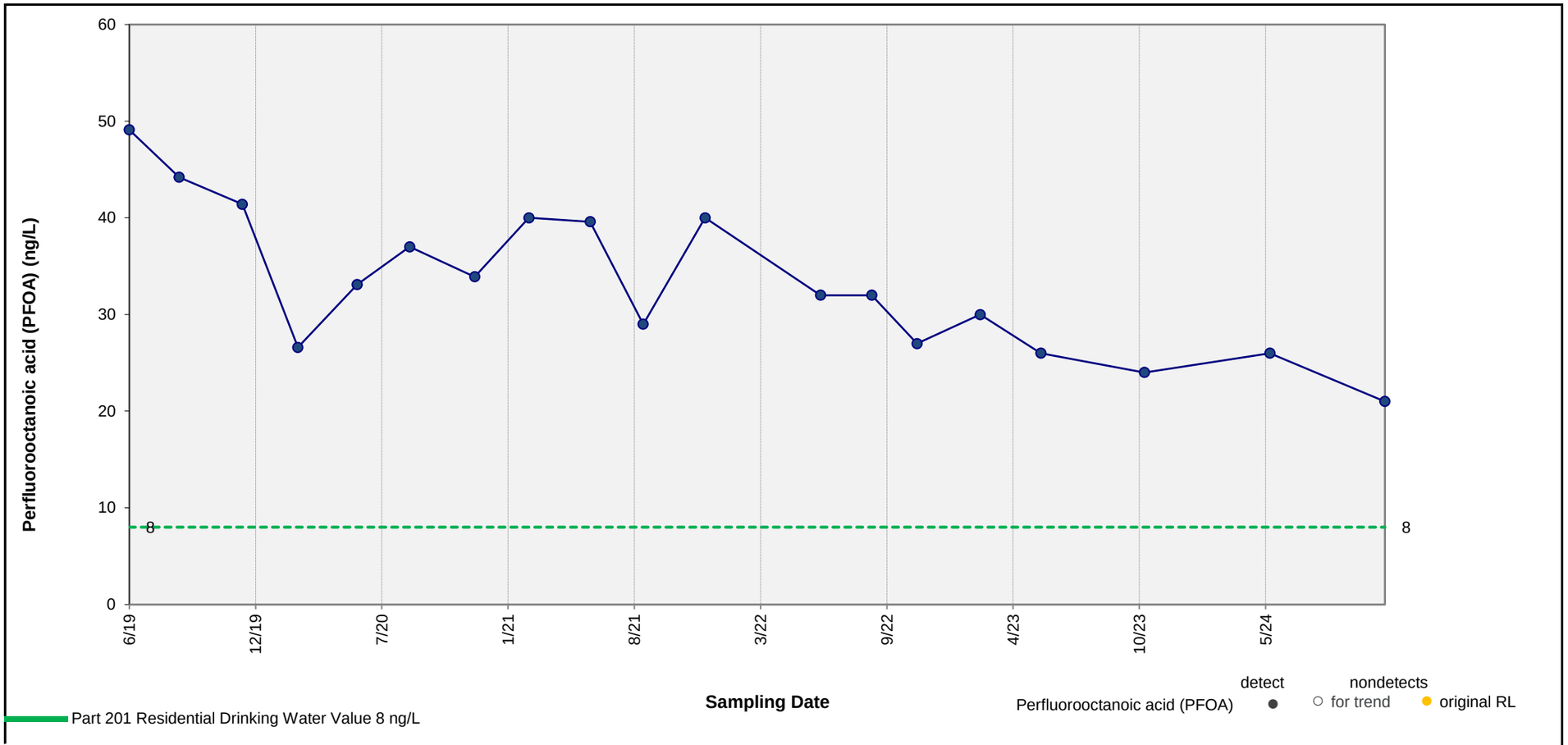
p value = 0.199 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Perfluorooctane sulfonic acid (PFOS) in Well UNK-15

RACER Lansing

Figure H-76



Part 201 Groundwater Surface Water Interface criteria value of 170 ng/L is off-scale

Results of Mann-Kendall Test for Trend: **DECREASING TREND**

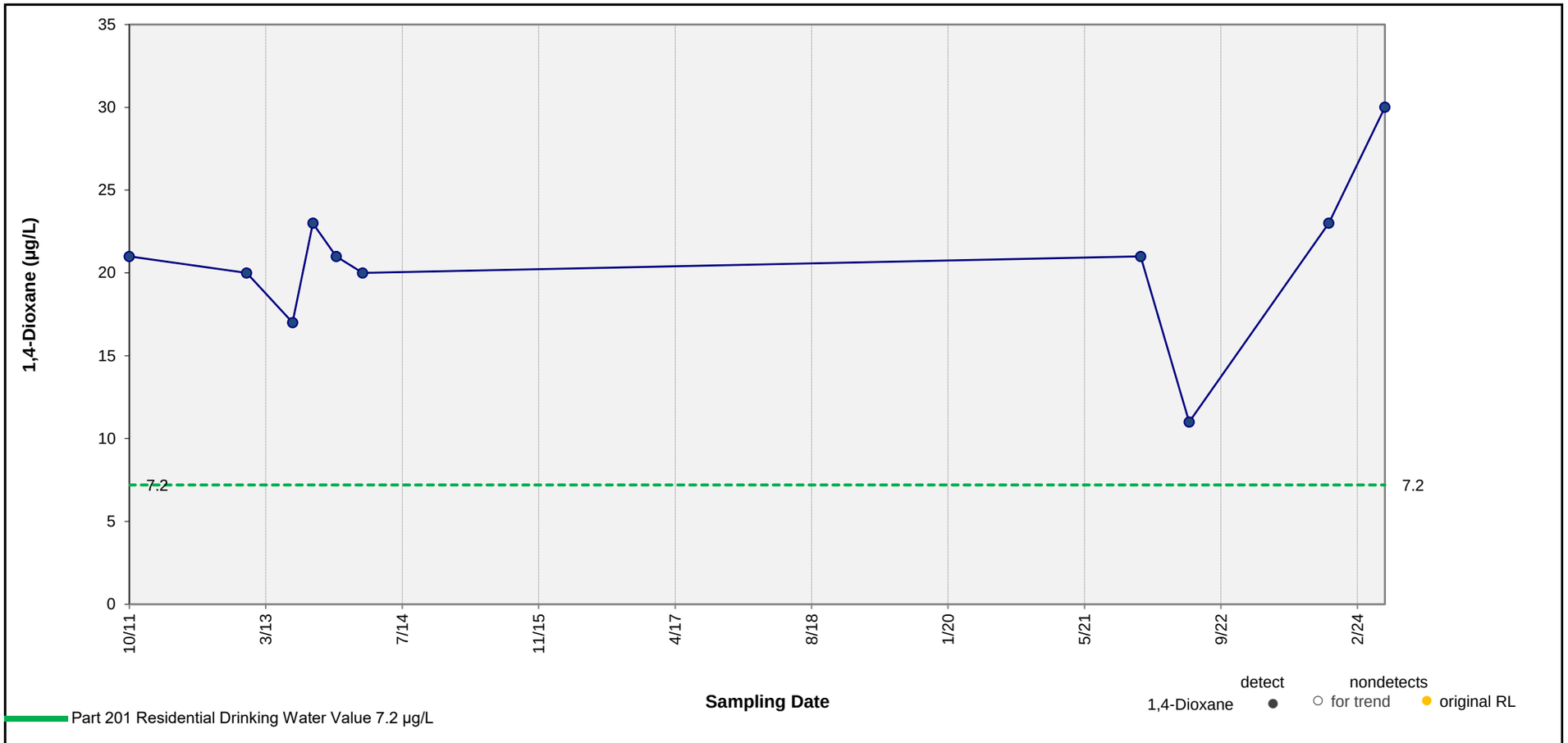
p value = <0.001 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Perfluorooctanoic acid (PFOA) in Well UNK-15

RACER Lansing

Figure H-77



Part 201 Groundwater Surface Water Interface criteria value of 280 µg/L is off-scale

Results of Mann-Kendall Test for Trend: **No Significant Trend**

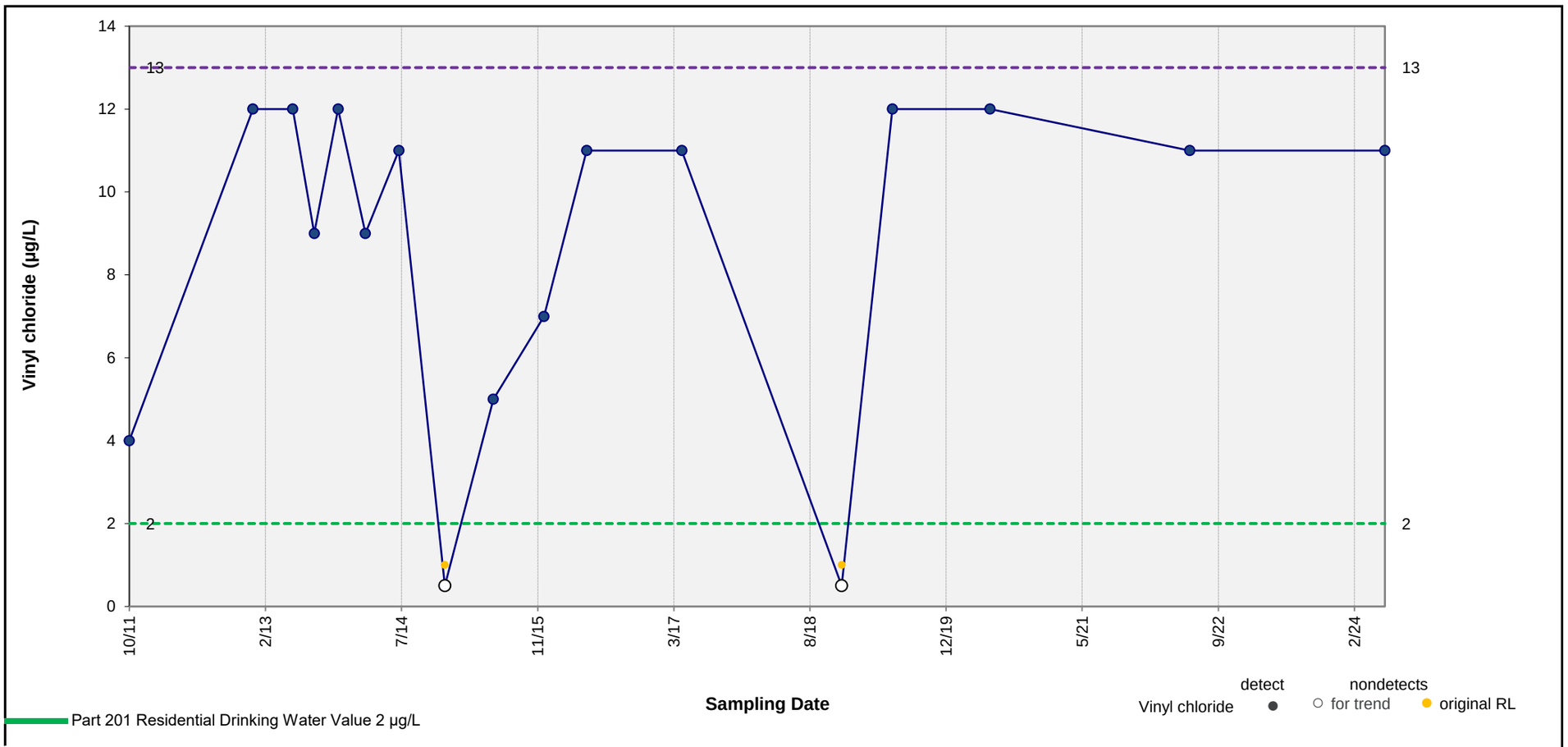
p value = 0.216 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – 1,4-Dioxane in Well MW-02-02(6)

RACER Lansing

Figure H-78



Results of Mann-Kendall Test for Trend: **No Significant Trend**

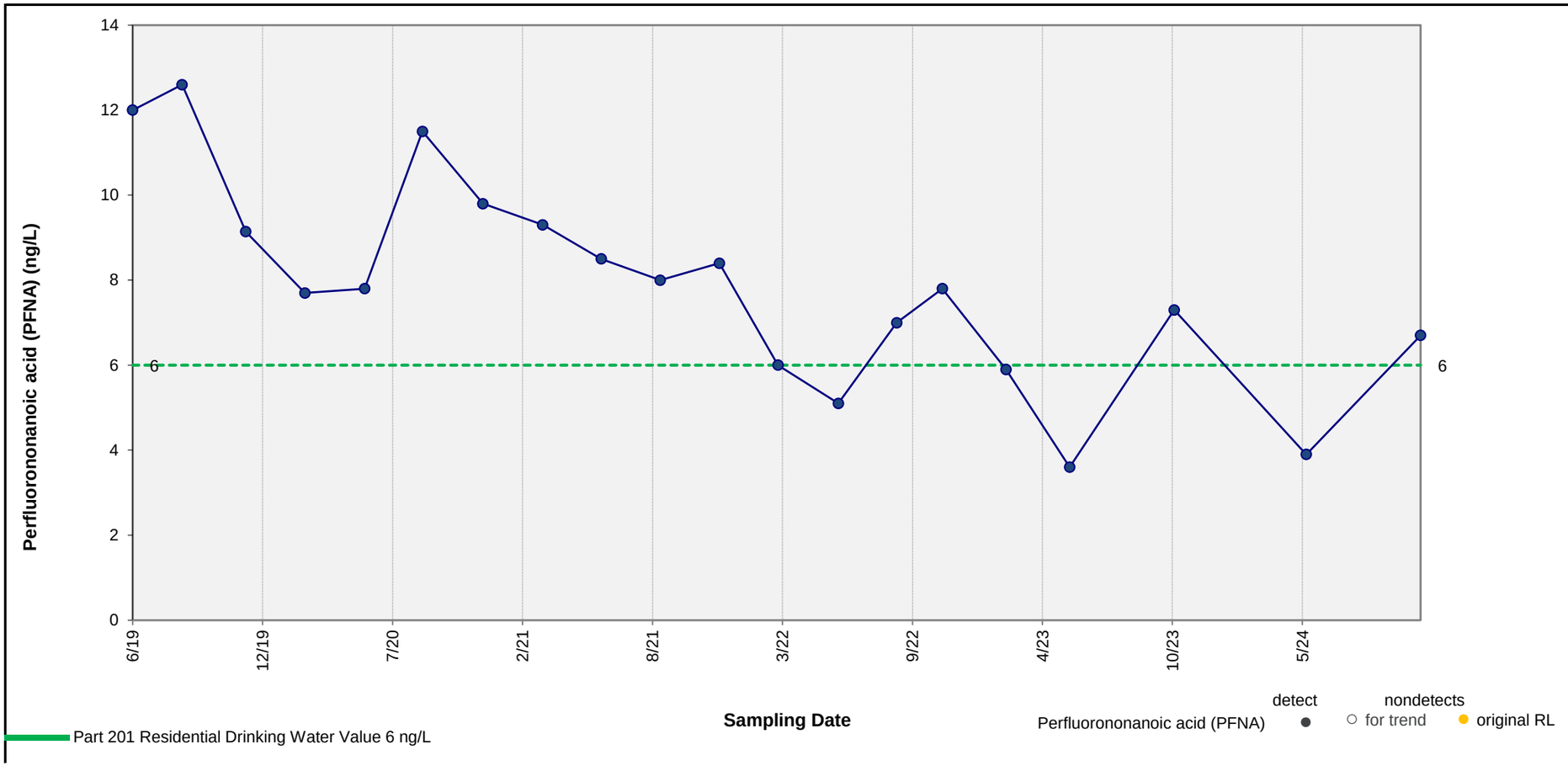
p value = 0.416 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Vinyl chloride in Well MW-03-06

RACER Lansing

Figure H-79



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

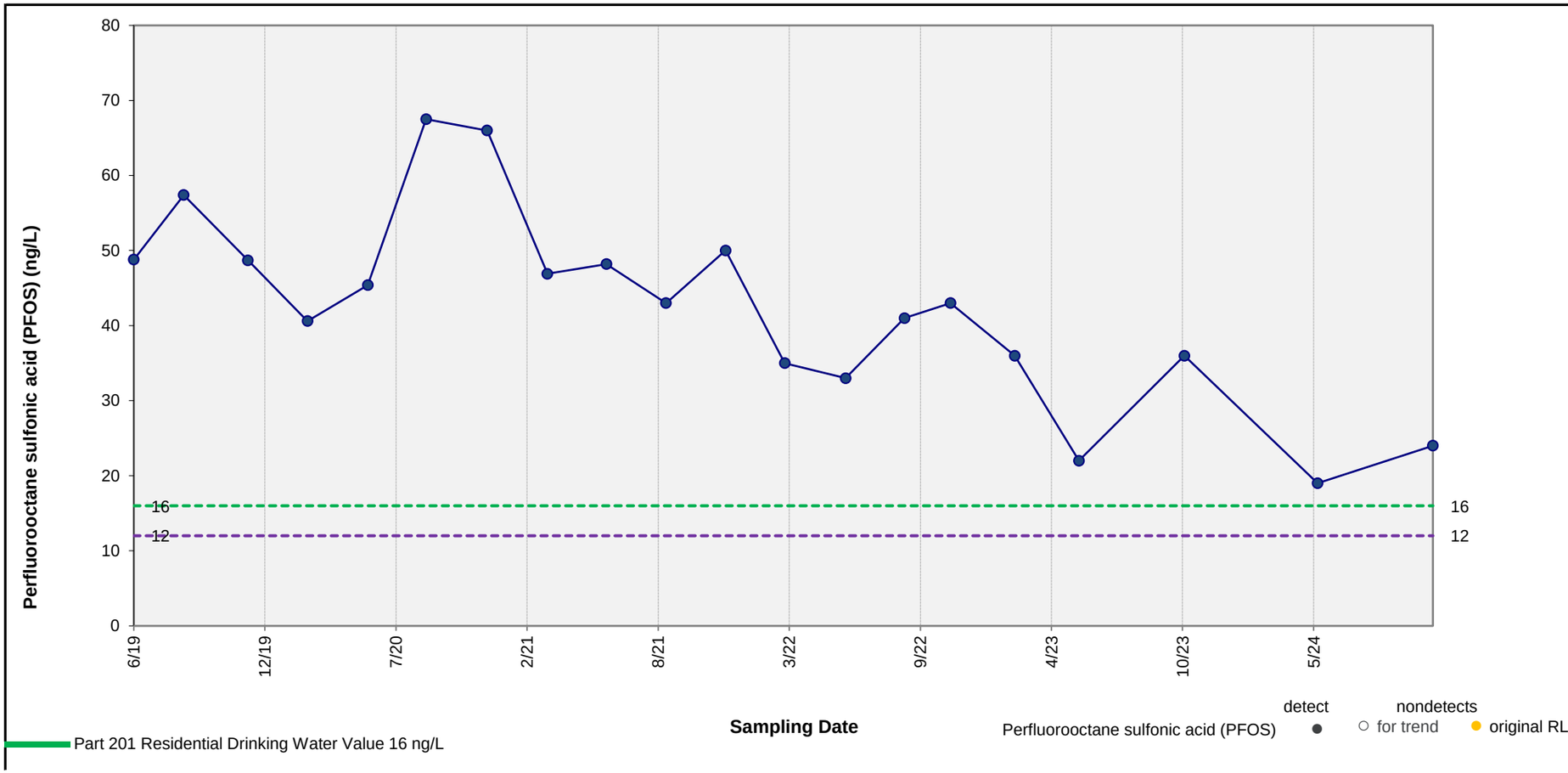
p value = <0.001 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Perfluorononanoic acid (PFNA) in Well MW-12-12

RACER Lansing

Figure H-80



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

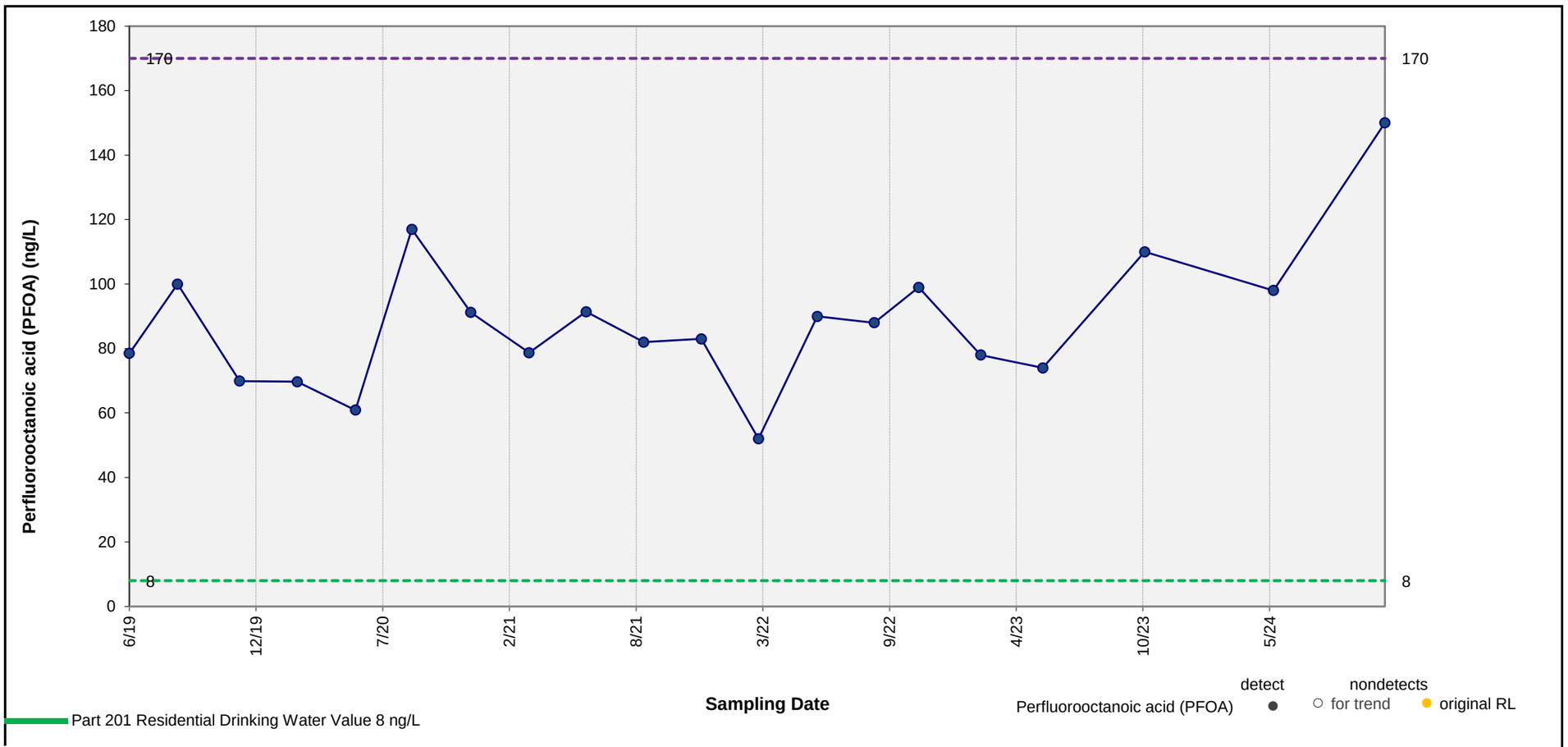
p value = <0.001 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Perfluorooctane sulfonic acid (PFOS) in Well MW-12-12

RACER Lansing

Figure H-81



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

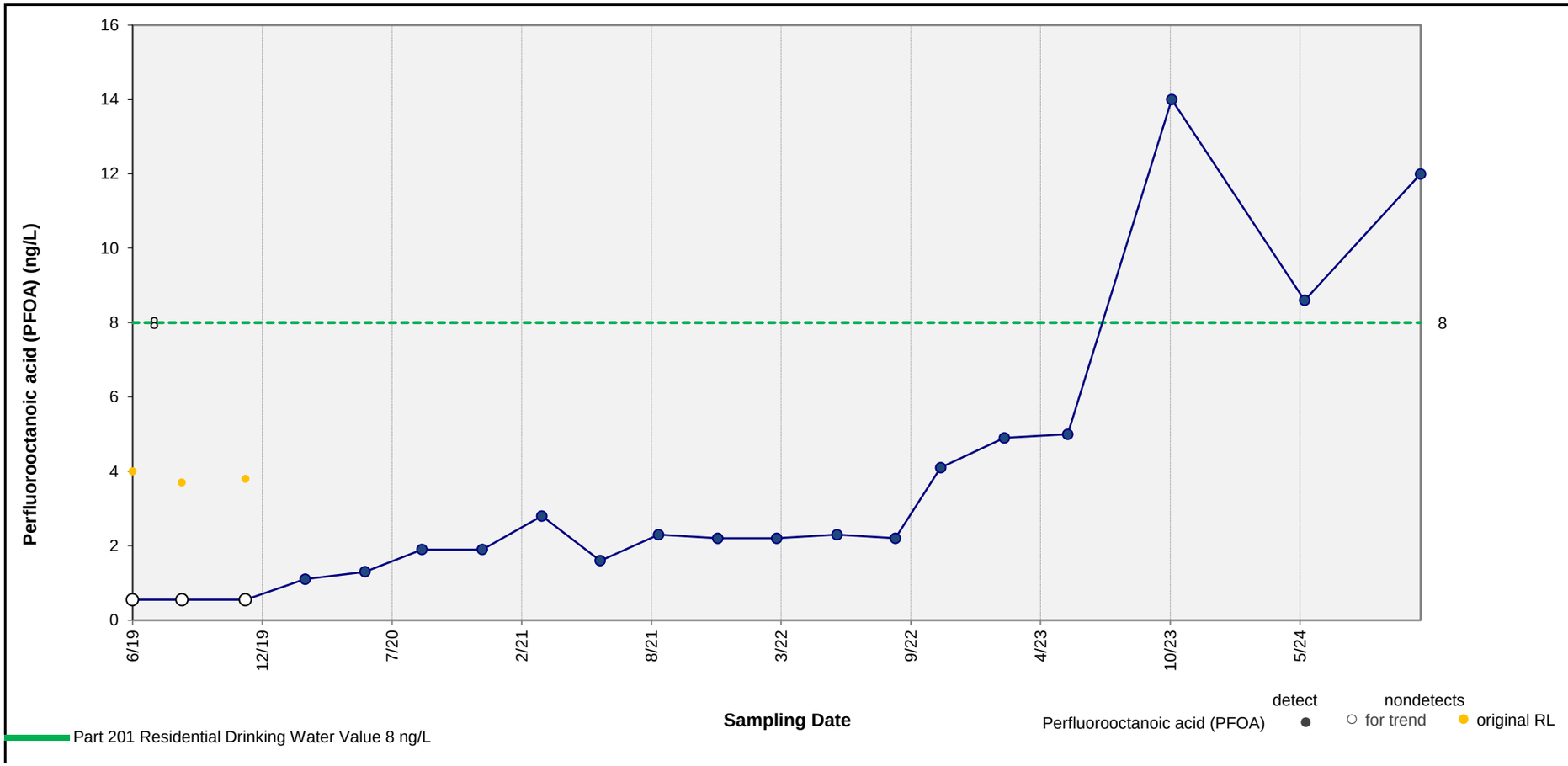
p value = 0.092 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Perfluorooctanoic acid (PFOA) in Well MW-12-12

RACER Lansing

Figure H-82



Part 201 Groundwater Surface Water Interface criteria value of 170 ng/L is off-scale

Results of Mann-Kendall Test for Trend: **INCREASING TREND**

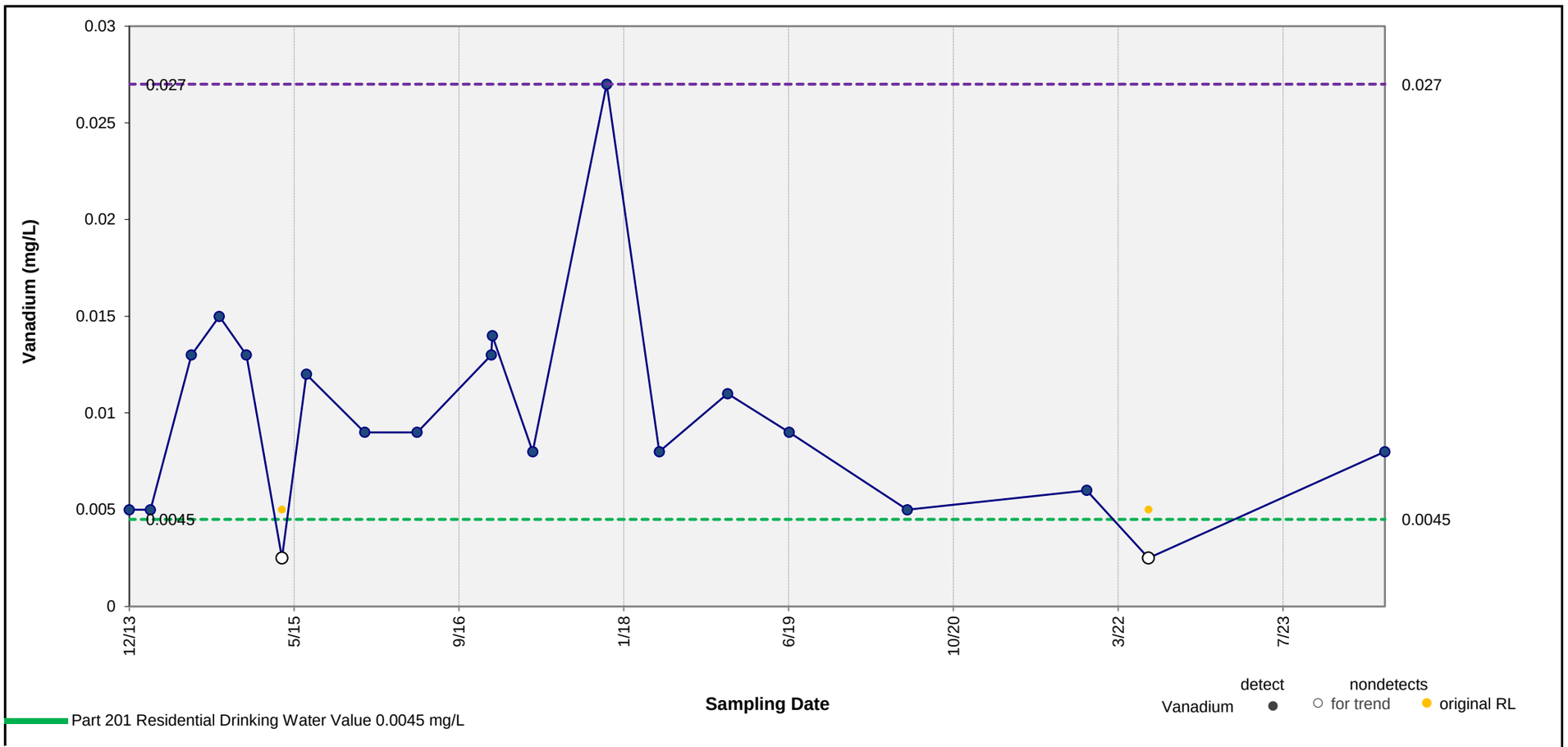
p value = <0.001 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Perfluorooctanoic acid (PFOA) in Well MW-12-13

RACER Lansing

Figure H-83



Results of Mann-Kendall Test for Trend: **No Significant Trend**

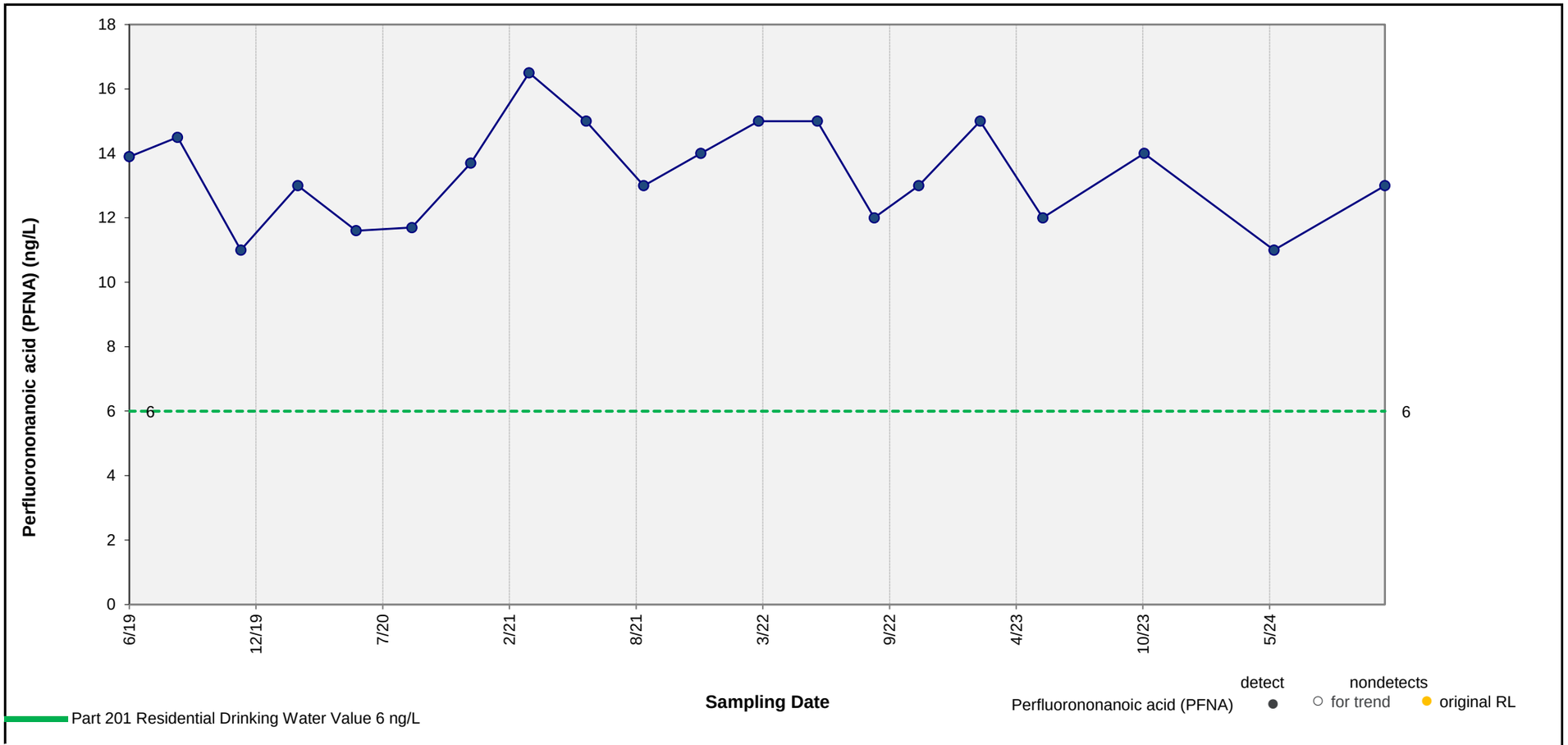
p value = 0.148 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Vanadium in Well MW-13-36R

RACER Lansing

Figure H-84



Results of Mann-Kendall Test for Trend: **No Significant Trend**

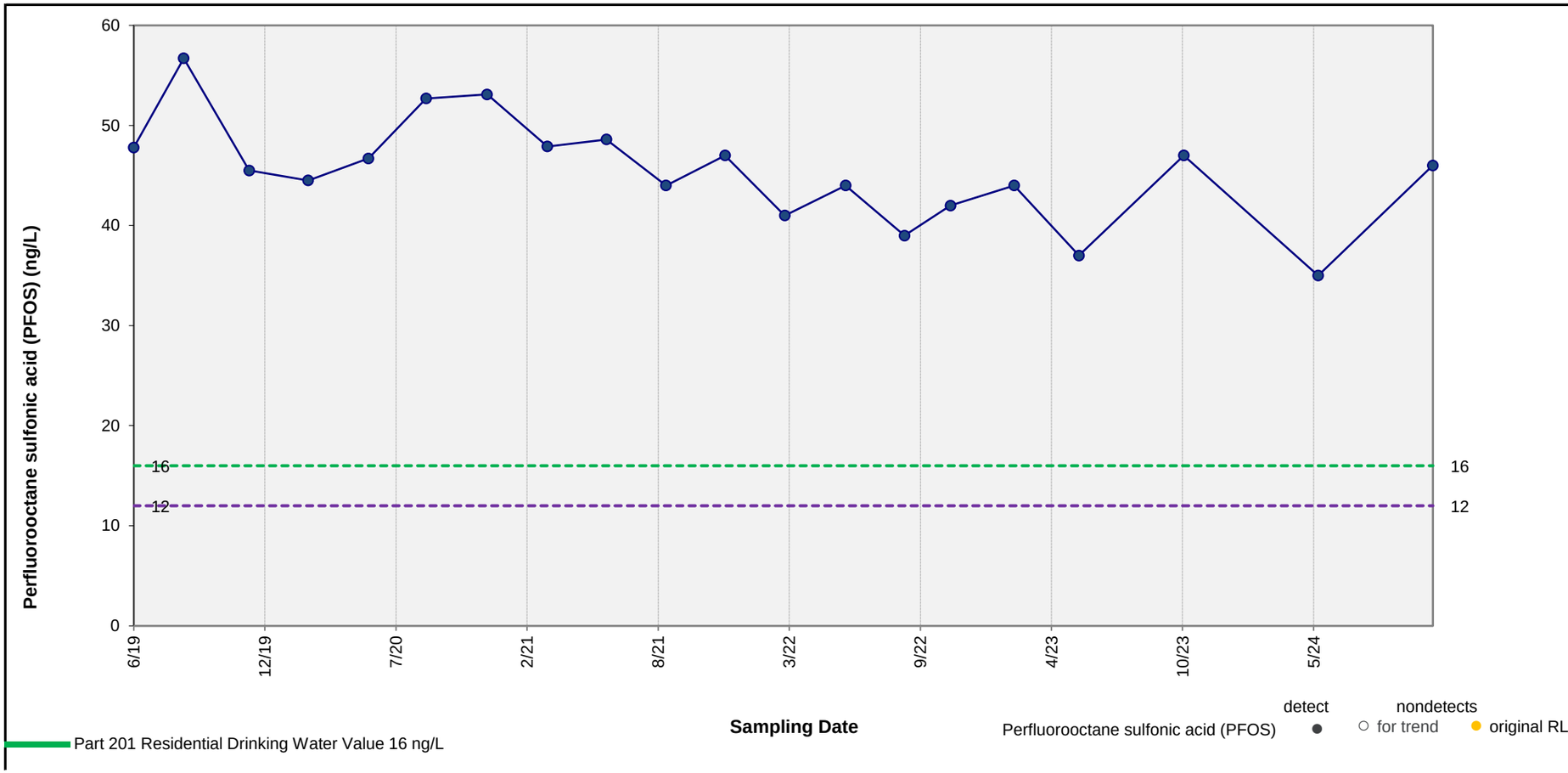
p value = 0.500 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Perfluorononanoic acid (PFNA) in Well MW-13-36R

RACER Lansing

Figure H-85



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

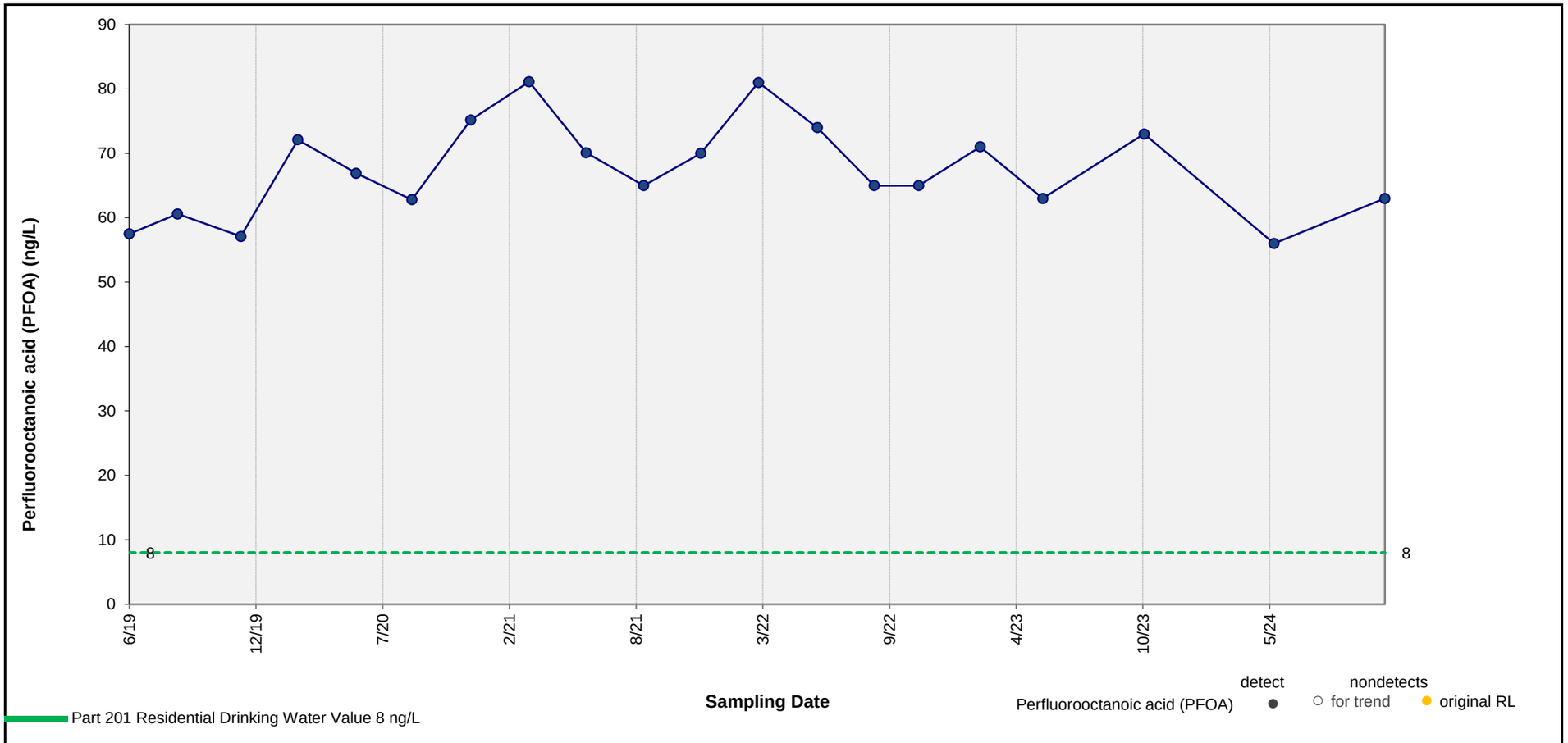
p value = 0.003 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Perfluorooctane sulfonic acid (PFOS) in Well MW-13-36R

RACER Lansing

Figure H-86



Part 201 Groundwater Surface Water Interface criteria value of 170 ng/L is off-scale

Results of Mann-Kendall Test for Trend: **No Significant Trend**

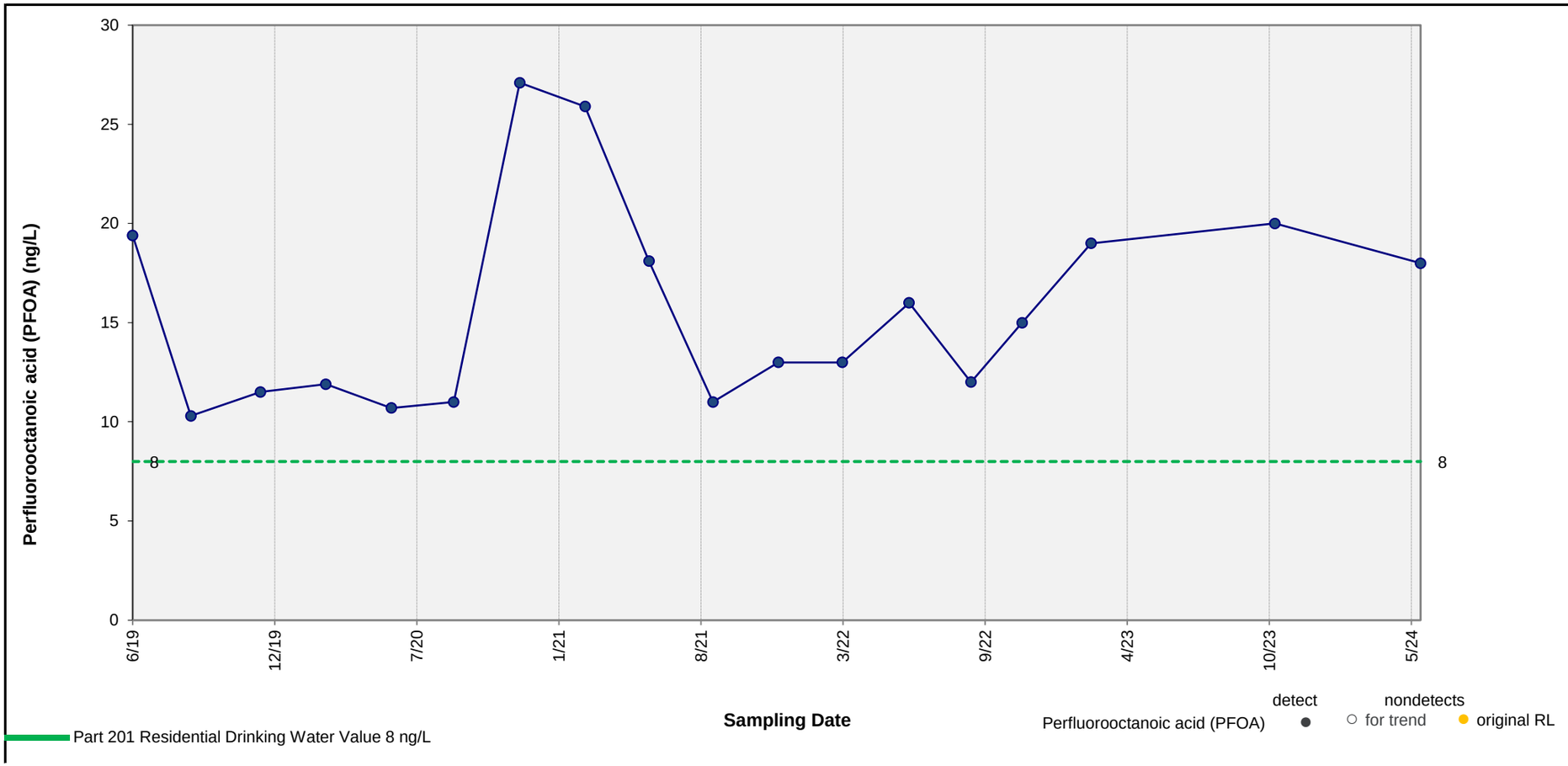
p value = 0.410 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Perfluorooctanoic acid (PFOA) in Well MW-13-36R

RACER Lansing

Figure H-87



Part 201 Groundwater Surface Water Interface criteria value of 170 ng/L is off-scale

Results of Mann-Kendall Test for Trend: **INCREASING TREND**

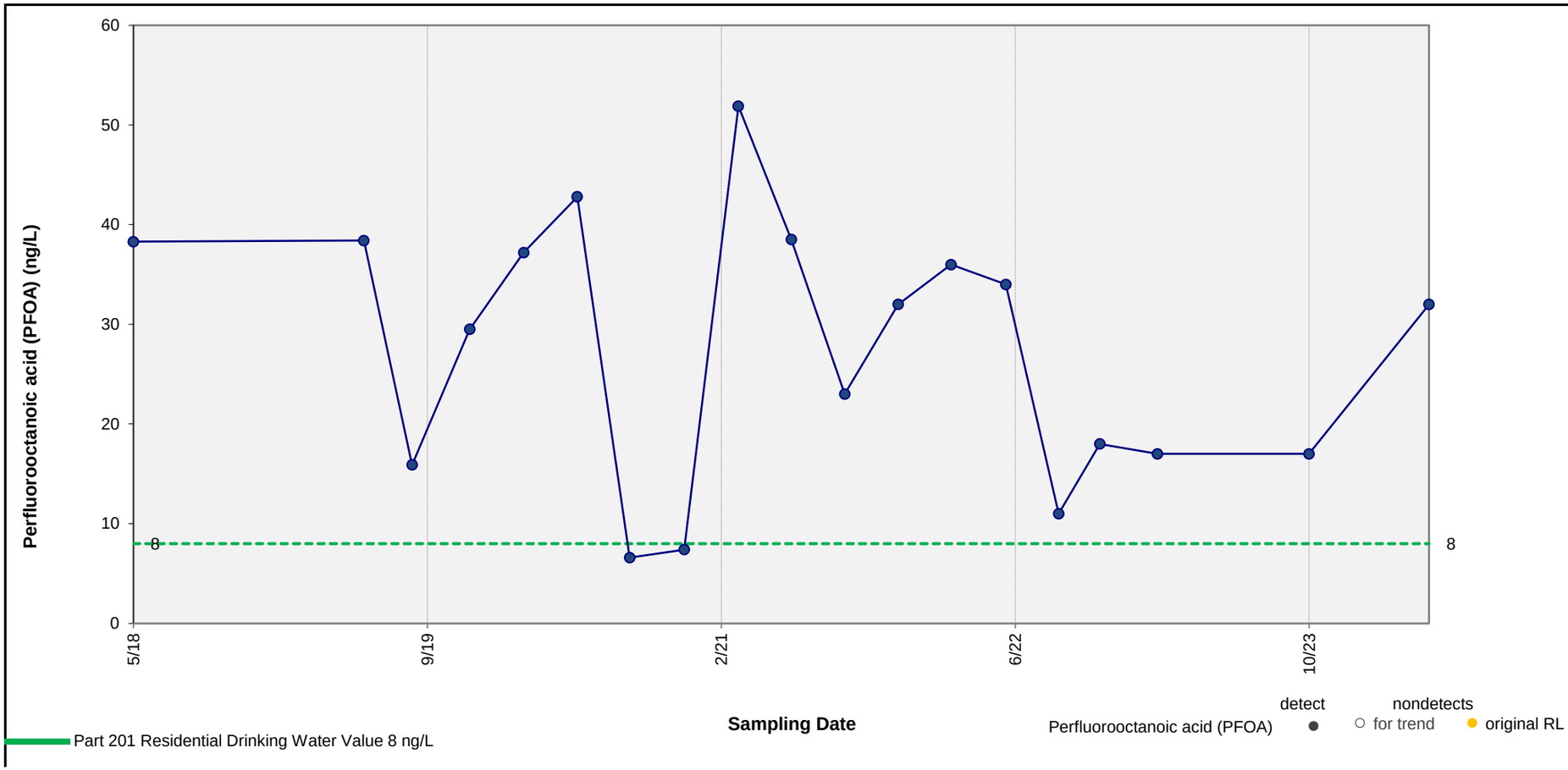
p value = 0.056 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Perfluorooctanoic acid (PFOA) in Well MW-14-67

RACER Lansing

Figure H-88



Results of Mann-Kendall Test for Trend: **No Significant Trend**

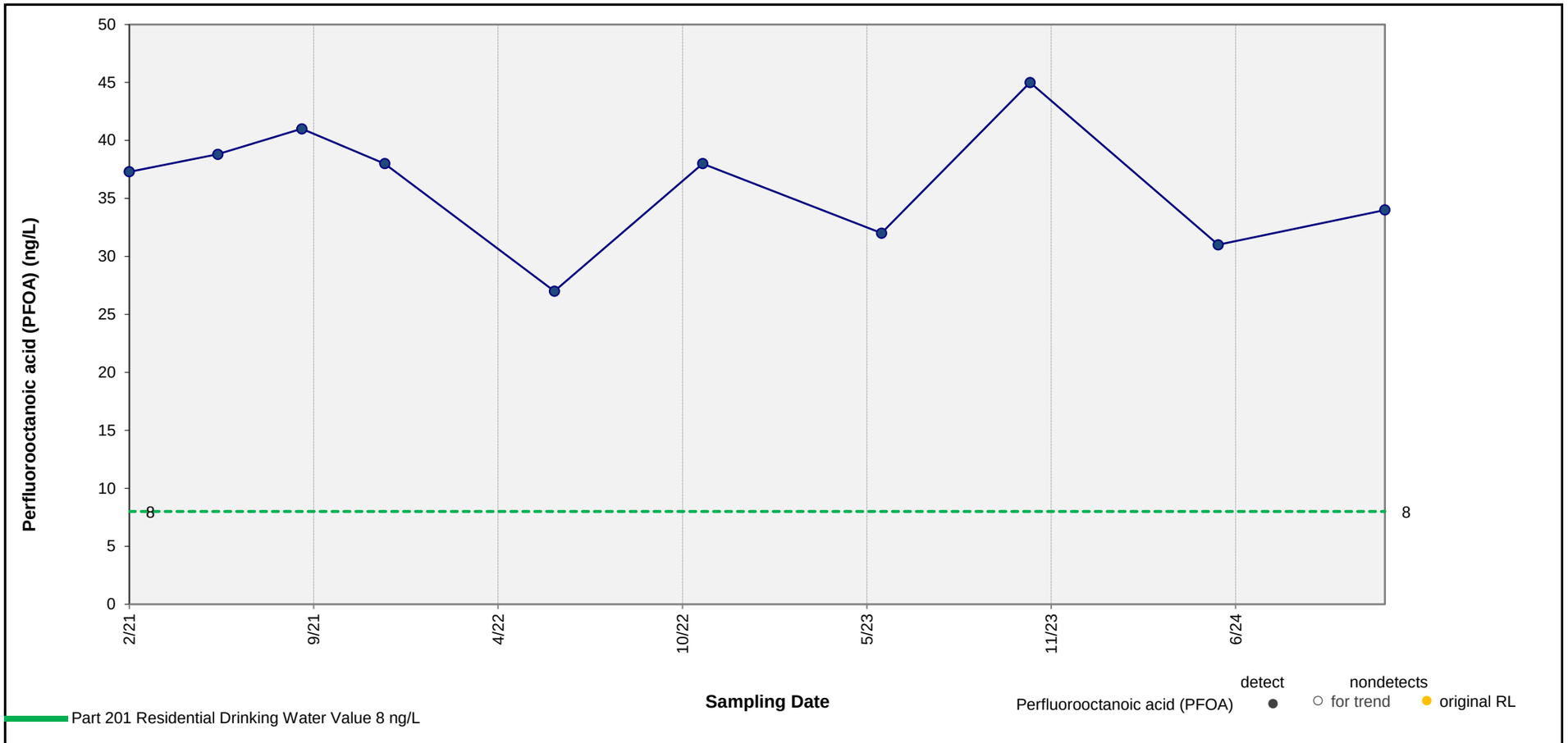
p value = 0.131 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Perfluorooctanoic acid (PFOA) in Well MW-14-70

RACER Lansing

Figure H-89



Part 201 Groundwater Surface Water Interface criteria value of 170 ng/L is off-scale

Results of Mann-Kendall Test for Trend: **No Significant Trend**

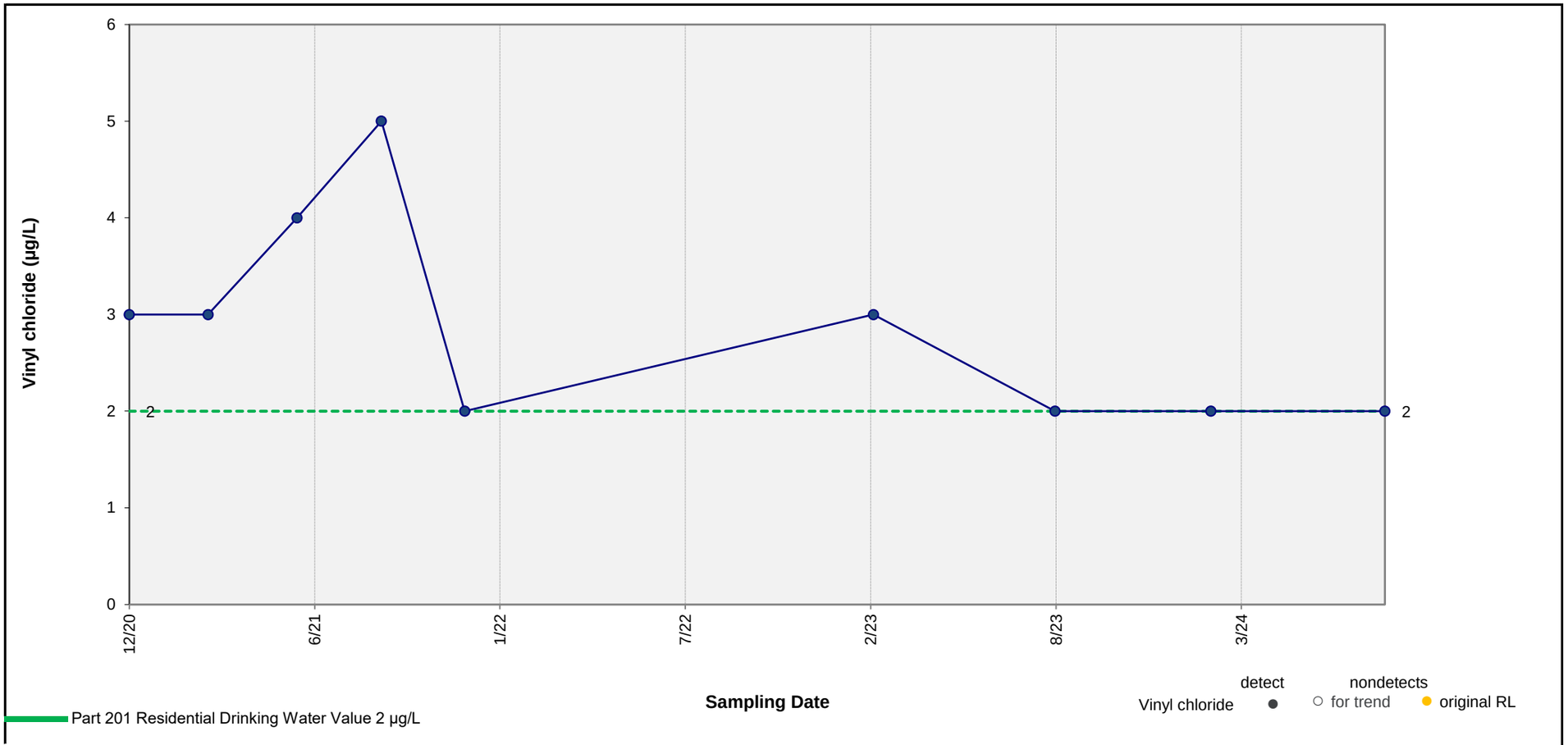
p value = 0.271 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Perfluorooctanoic acid (PFOA) in Well MW-20-131

RACER Lansing

Figure H-90



Part 201 Groundwater Surface Water Interface criteria value of 13 µg/L is off-scale

Results of Mann-Kendall Test for Trend: **DECREASING TREND**

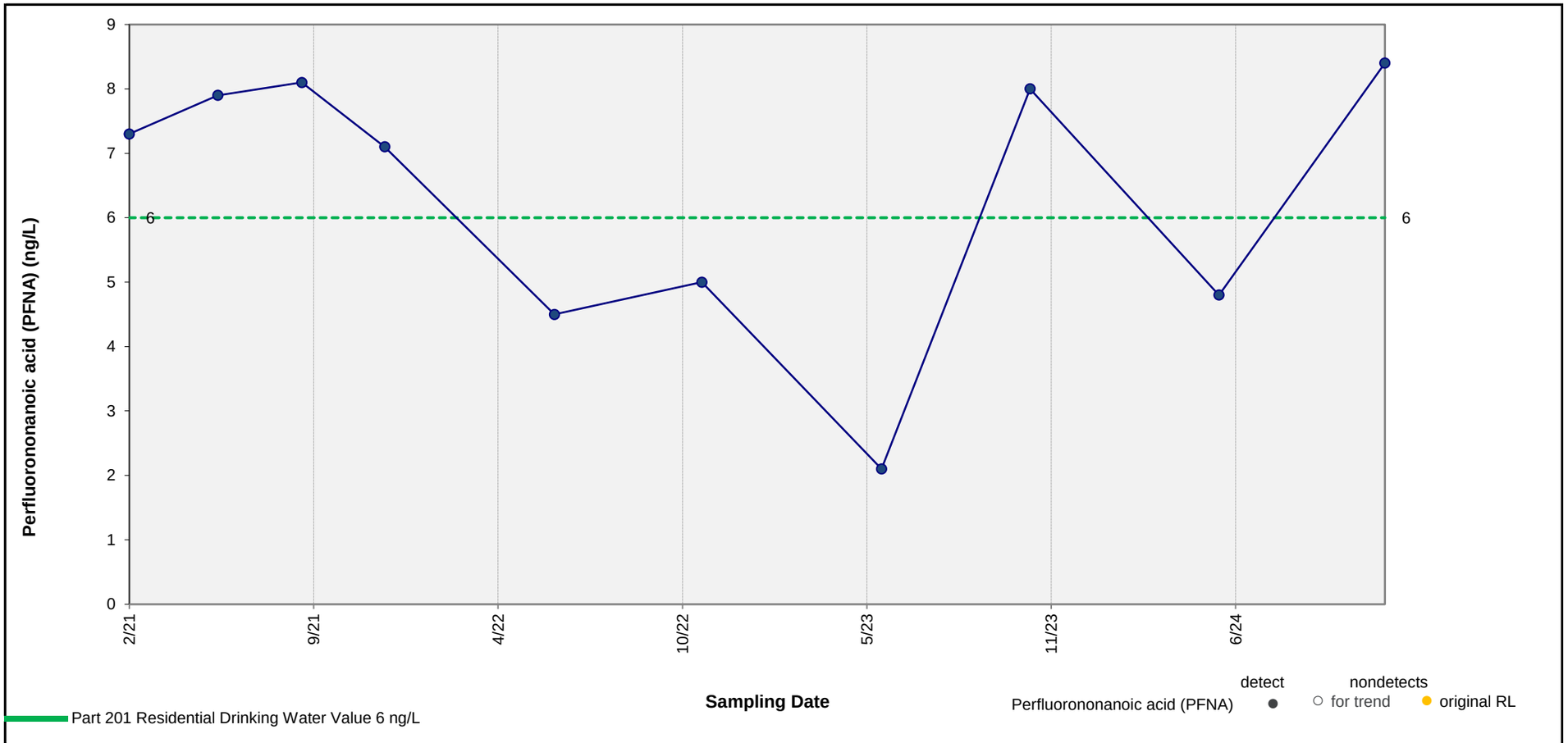
p value = 0.075 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Vinyl chloride in Well MW-20-131

RACER Lansing

Figure H-91



Part 201 Groundwater Surface Water Interface criteria value of 30 ng/L is off-scale

Results of Mann-Kendall Test for Trend: **No Significant Trend**

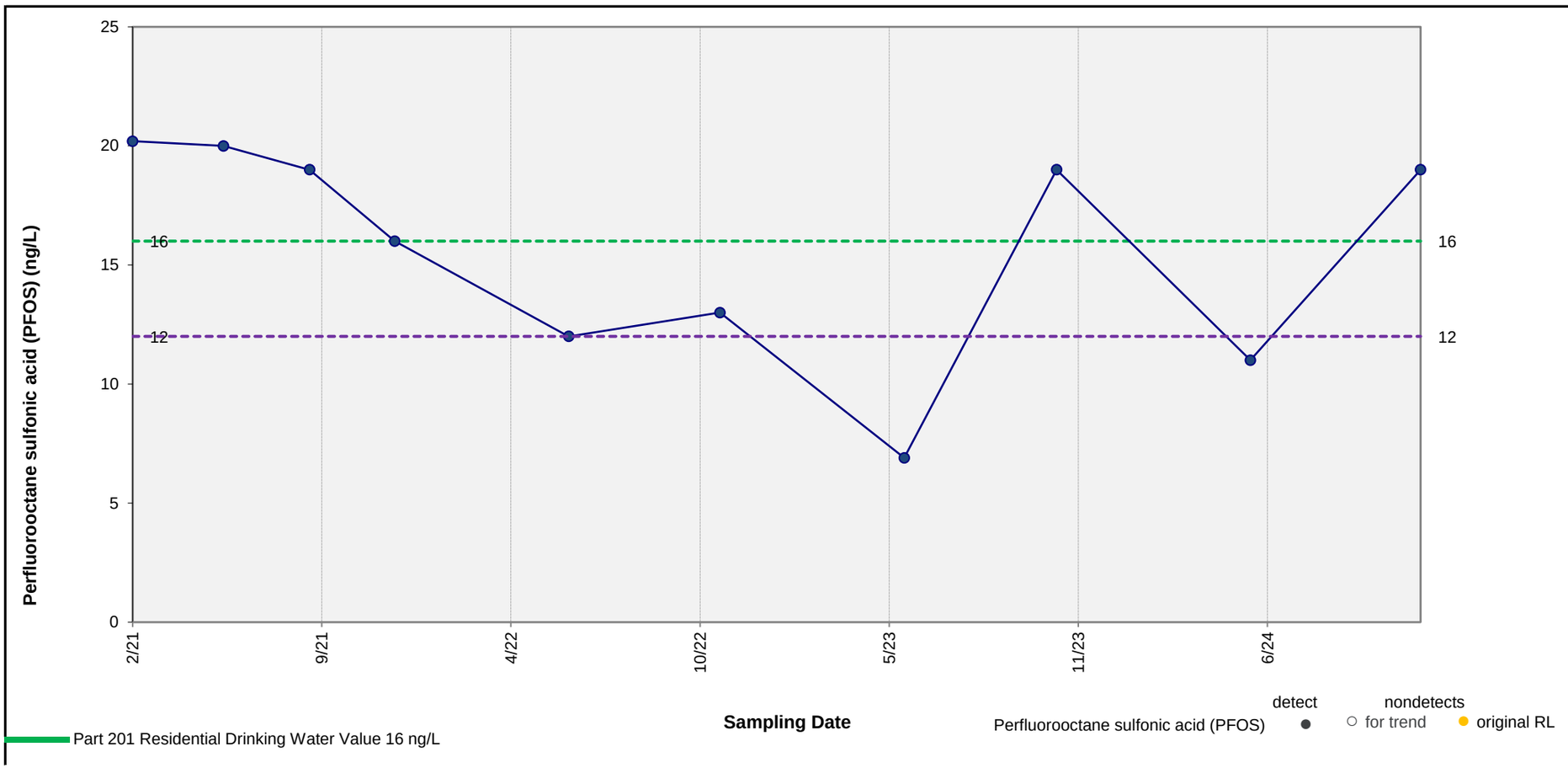
p value = 0.431 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Perfluorononanoic acid (PFNA) in Well MW-20-132

RACER Lansing

Figure H-92



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

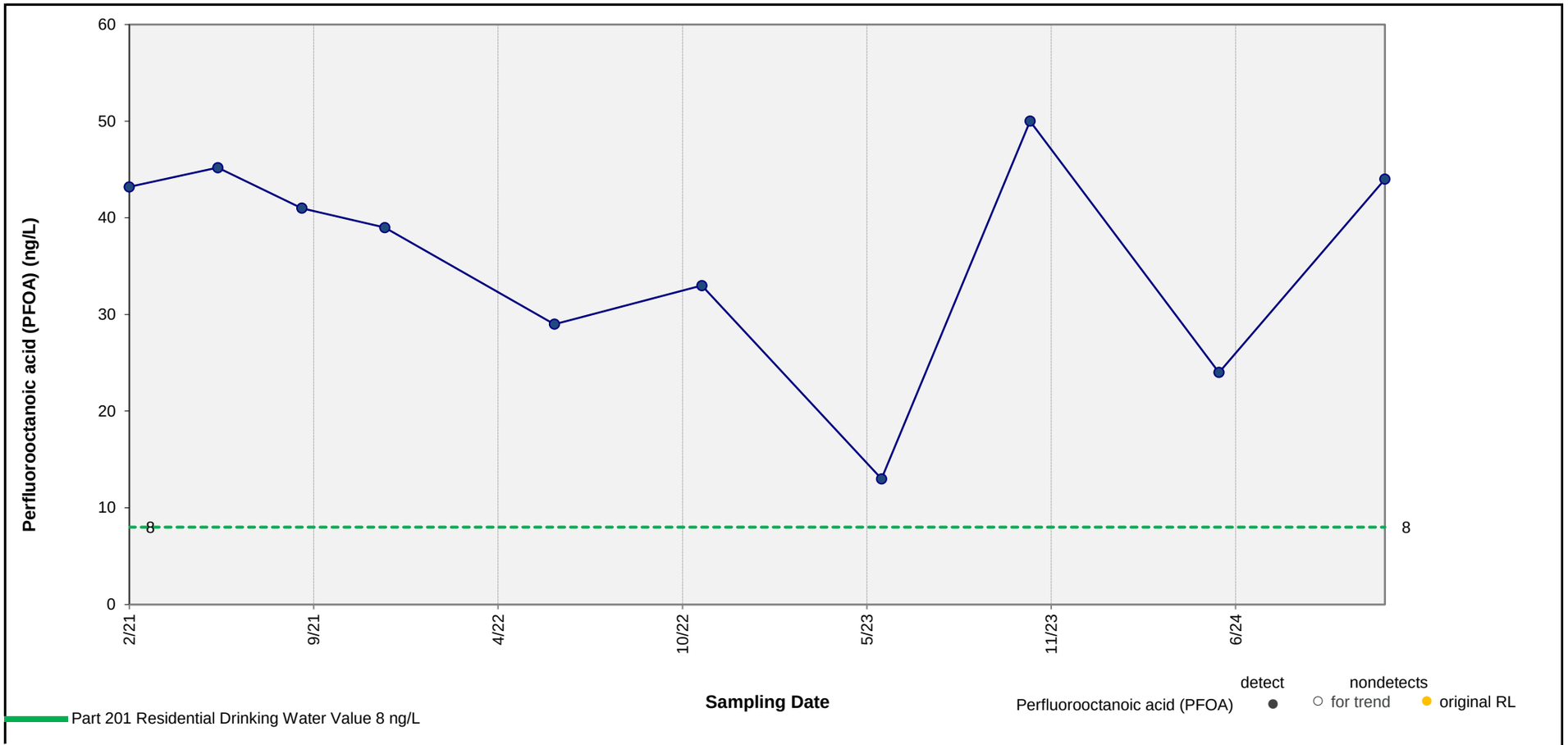
p value = 0.045 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Perfluorooctane sulfonic acid (PFOS) in Well MW-20-132

RACER Lansing

Figure H-93



Part 201 Groundwater Surface Water Interface criteria value of 170 ng/L is off-scale

Results of Mann-Kendall Test for Trend: **No Significant Trend**

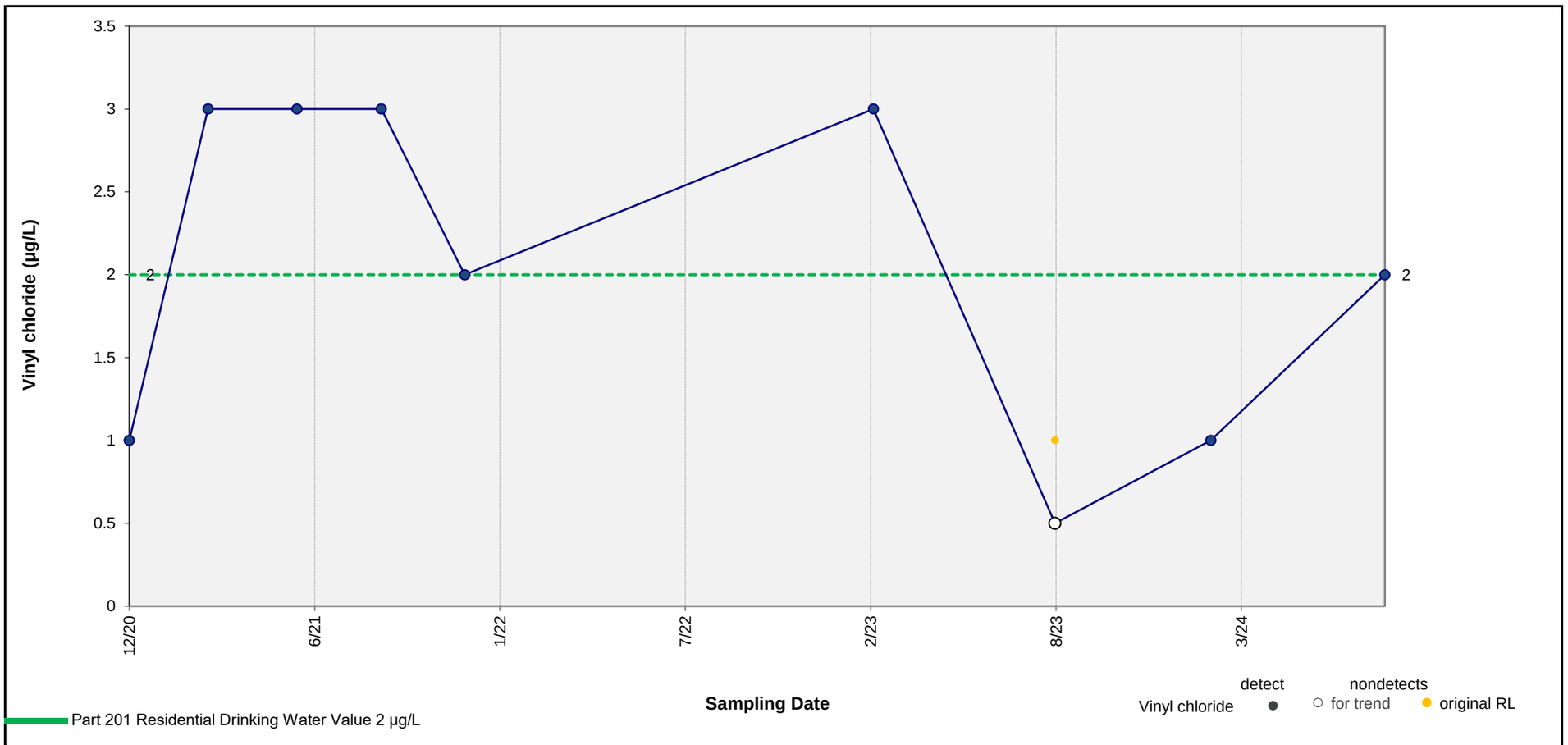
p value = 0.190 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Perfluorooctanoic acid (PFOA) in Well MW-20-132

RACER Lansing

Figure H-94



Part 201 Groundwater Surface Water Interface criteria value of 13 µg/L is off-scale

Results of Mann-Kendall Test for Trend: **No Significant Trend**

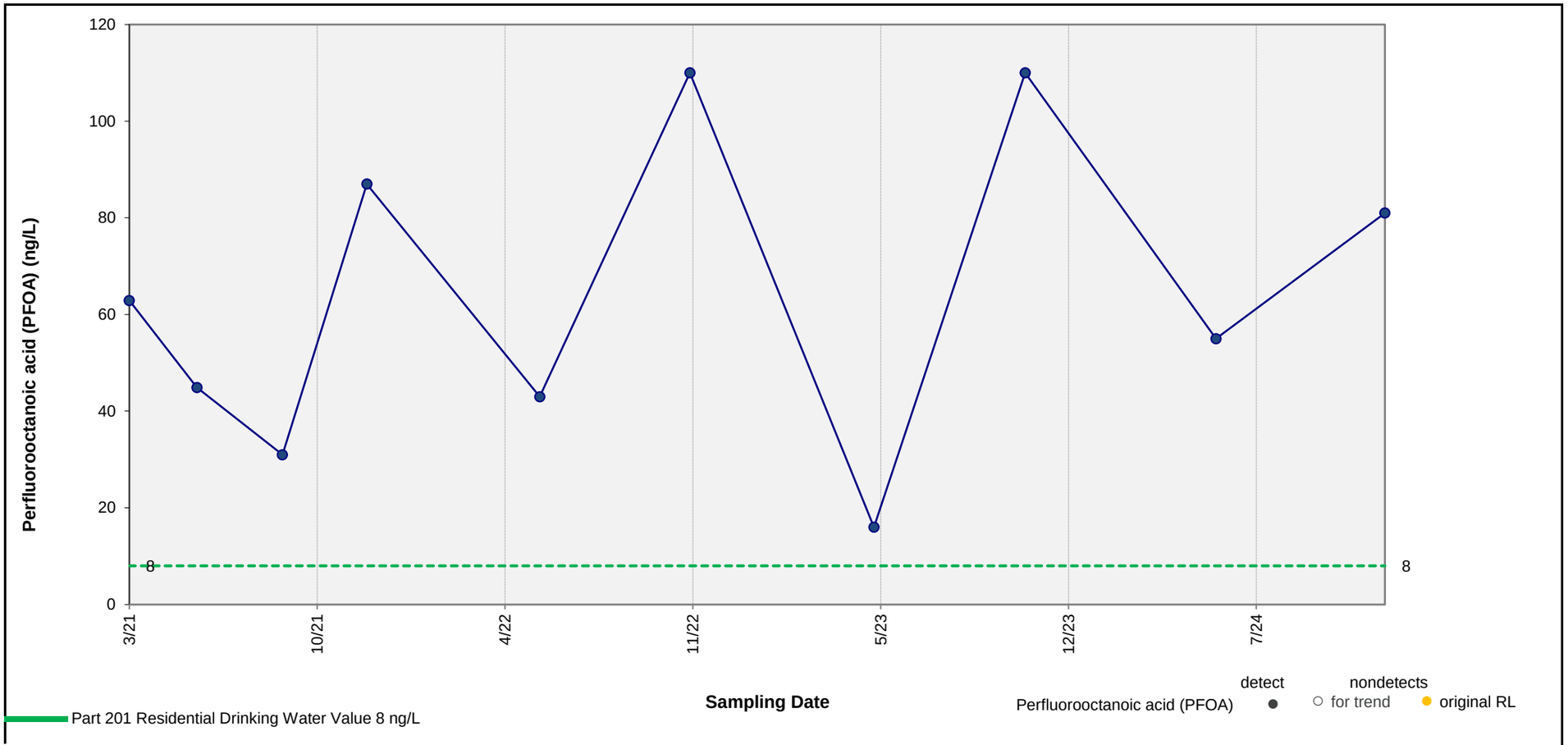
p value = 0.238 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Vinyl chloride in Well MW-20-132

RACER Lansing

Figure H-95



Part 201 Groundwater Surface Water Interface criteria value of 170 ng/L is off-scale

Results of Mann-Kendall Test for Trend: **No Significant Trend**

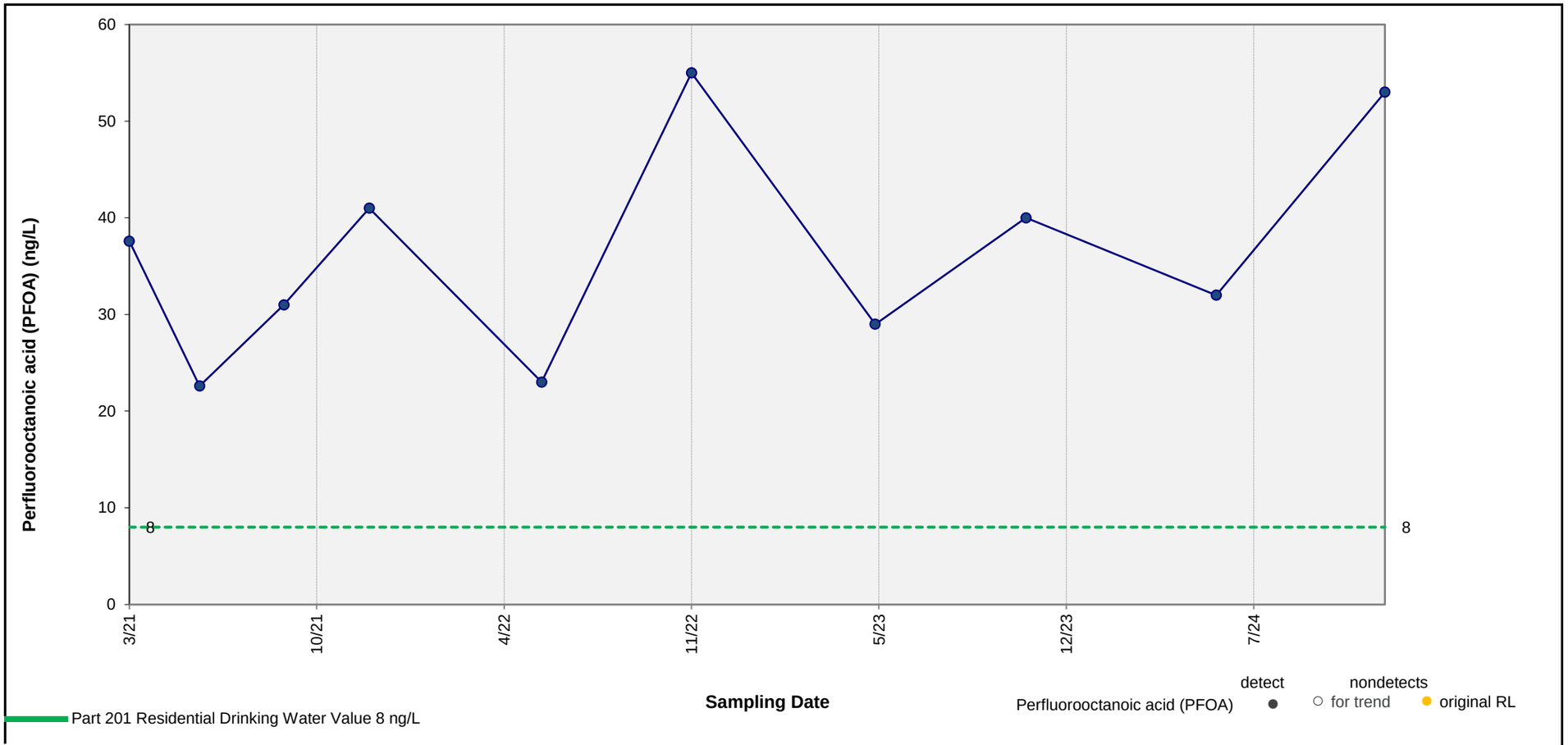
p value = 0.332 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Perfluorooctanoic acid (PFOA) in Well MW-21-133

RACER Lansing

Figure H-96



Results of Mann-Kendall Test for Trend: **No Significant Trend**

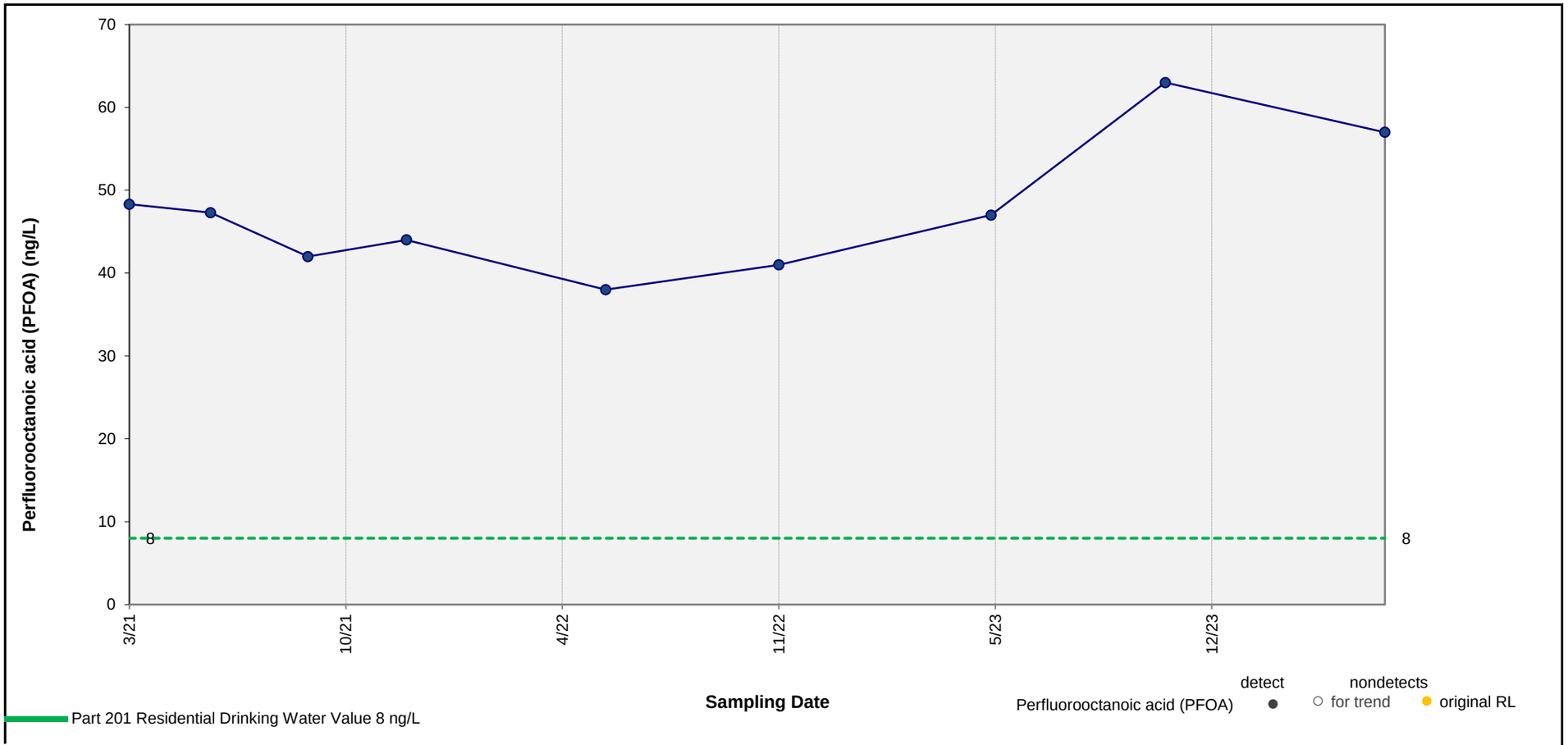
p value = 0.146 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Perfluorooctanoic acid (PFOA) in Well MW-21-134

RACER Lansing

Figure H-97



Part 201 Groundwater Surface Water Interface criteria value of 170 ng/L is off-scale

Results of Mann-Kendall Test for Trend: **No Significant Trend**

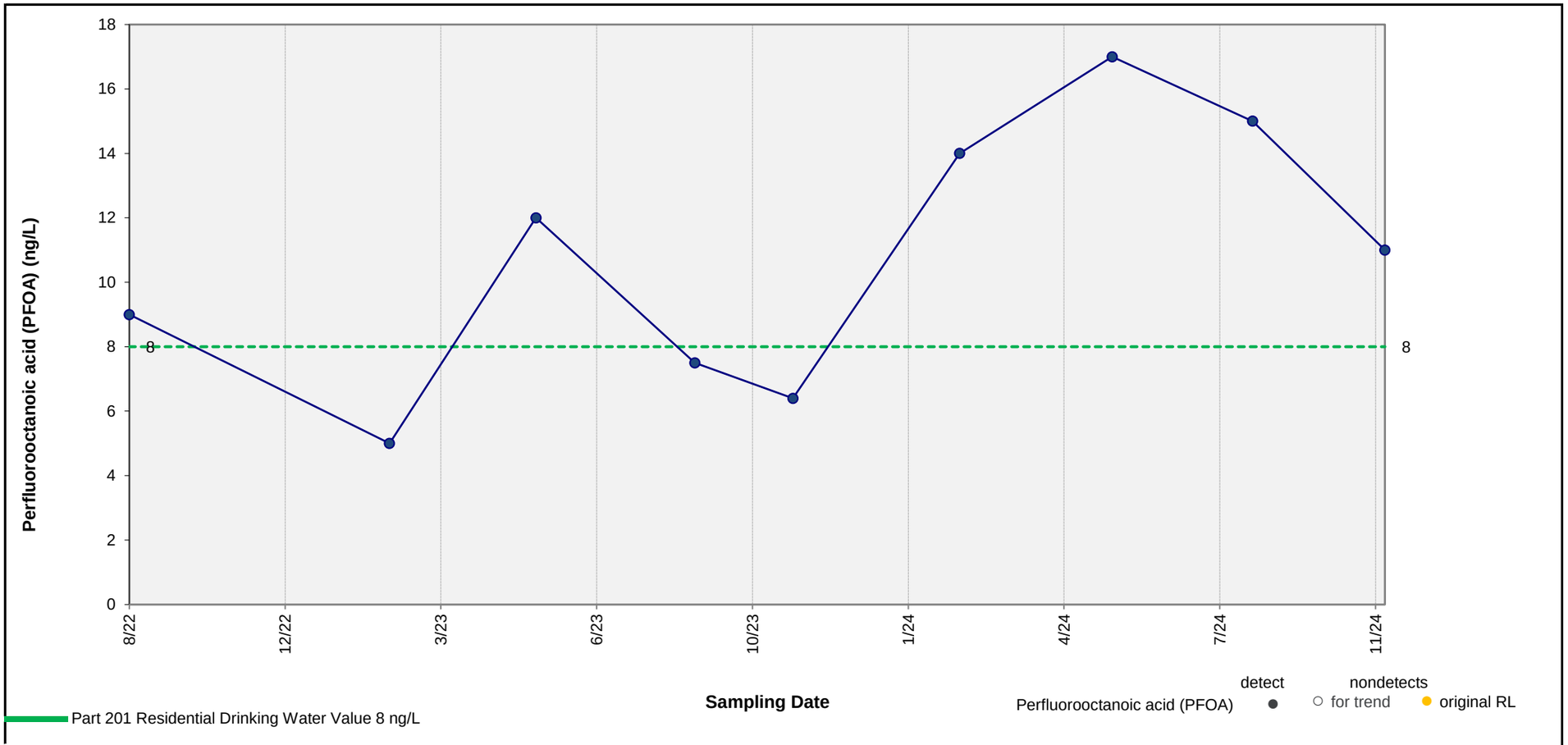
p value = 0.381 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Perfluorooctanoic acid (PFOA) in Well MW-21-135

RACER Lansing

Figure H-98



Part 201 Groundwater Surface Water Interface criteria value of 170 ng/L is off-scale

Results of Mann-Kendall Test for Trend: **INCREASING TREND**

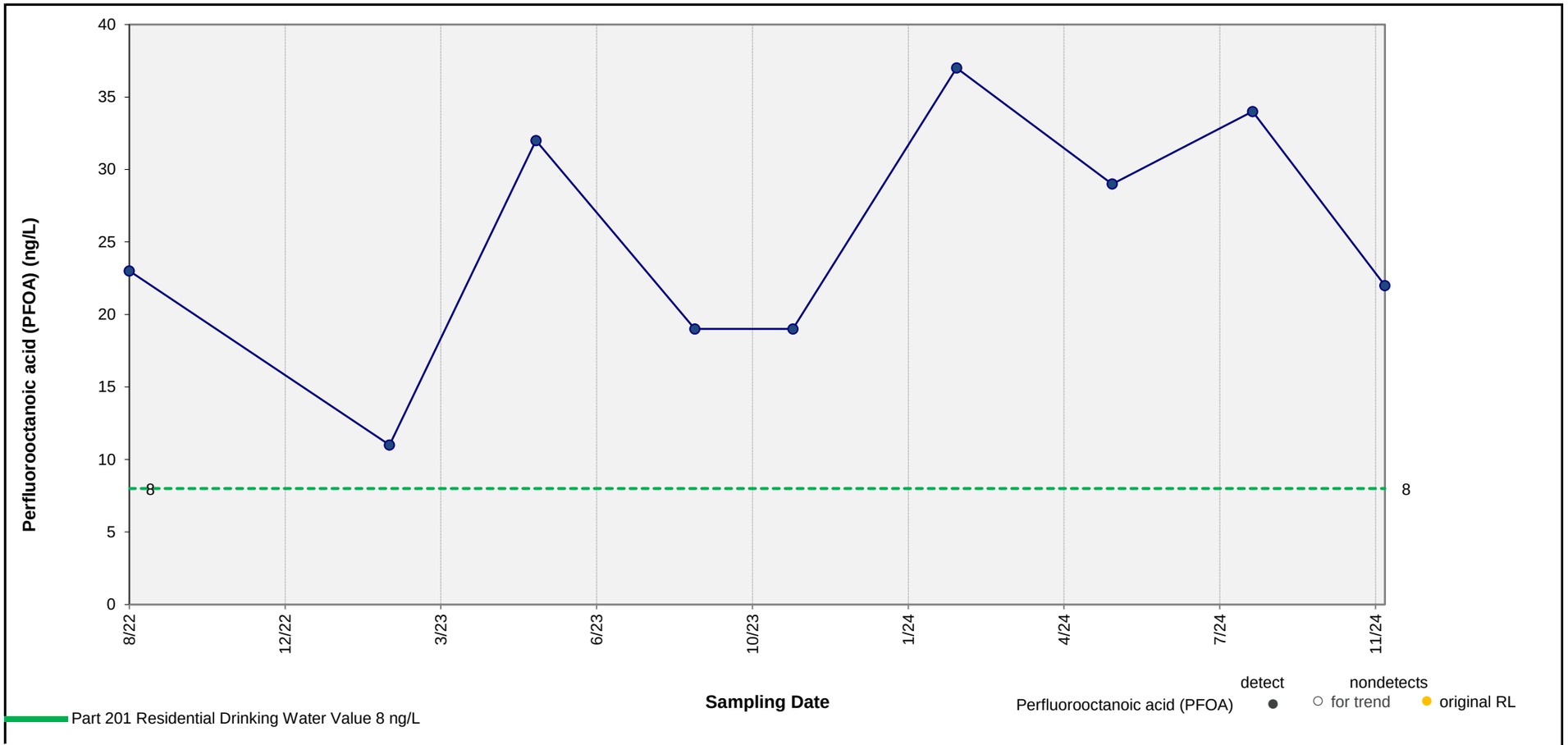
p value = 0.090 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Perfluorooctanoic acid (PFOA) in Well MW-22-144

RACER Lansing

Figure H-99



Part 201 Groundwater Surface Water Interface criteria value of 170 ng/L is off-scale

Results of Mann-Kendall Test for Trend: **No Significant Trend**

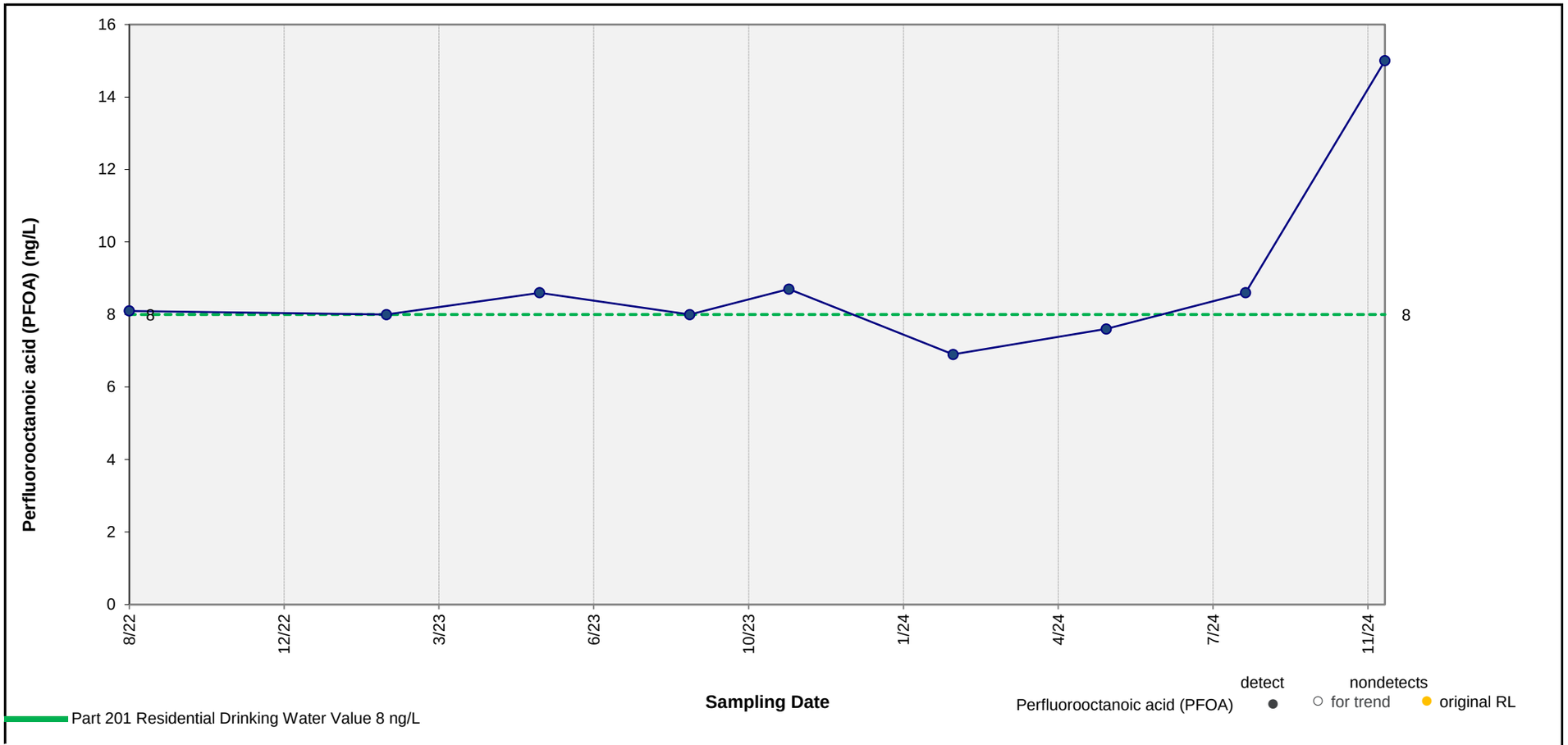
p value = 0.209 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Perfluorooctanoic acid (PFOA) in Well MW-22-145

RACER Lansing

Figure H-100



Part 201 Groundwater Surface Water Interface criteria value of 170 ng/L is off-scale

Results of Mann-Kendall Test for Trend: **No Significant Trend**

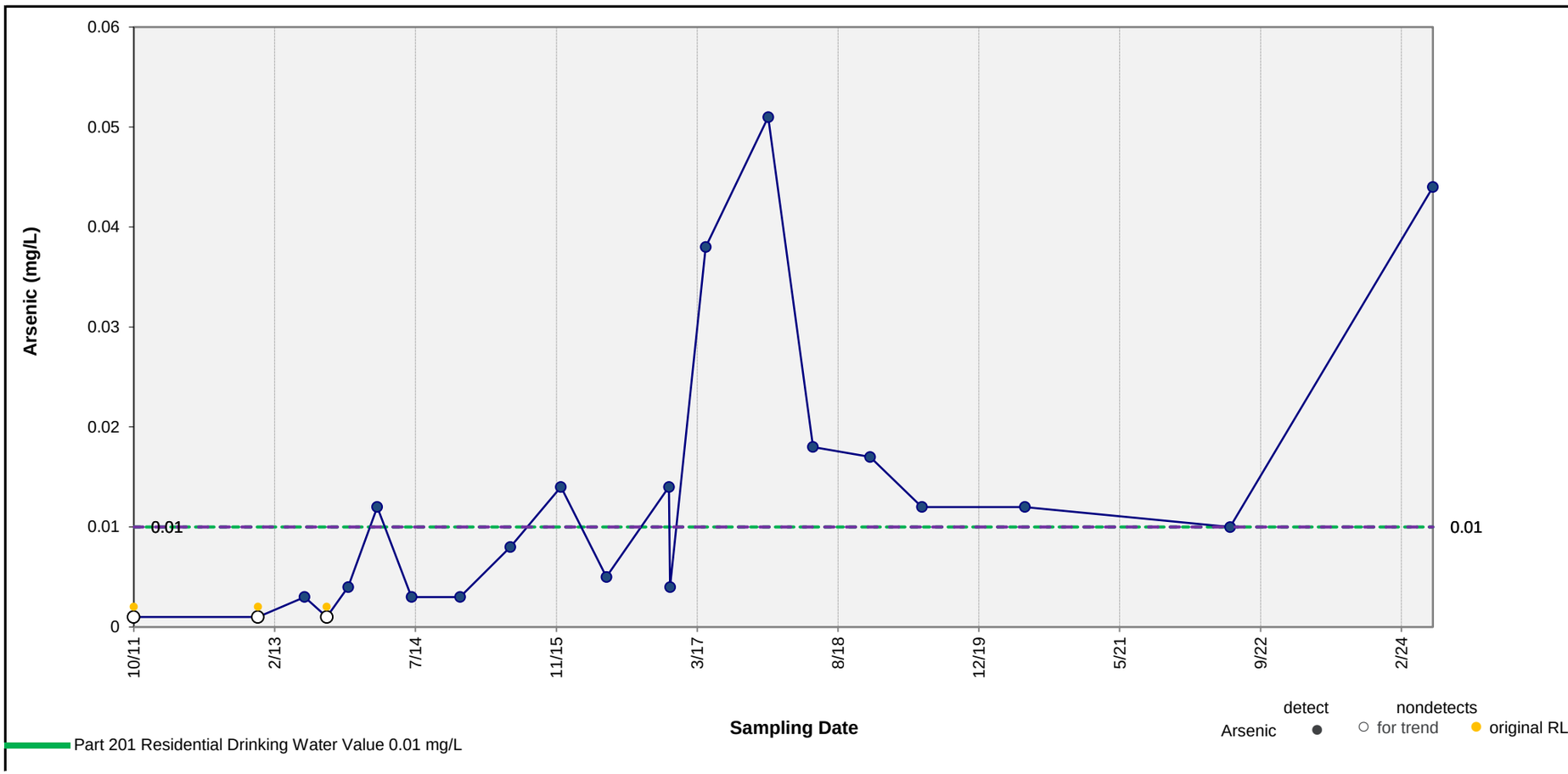
p value = 0.306 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Perfluorooctanoic acid (PFOA) in Well MW-22-151

RACER Lansing

Figure H-101



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

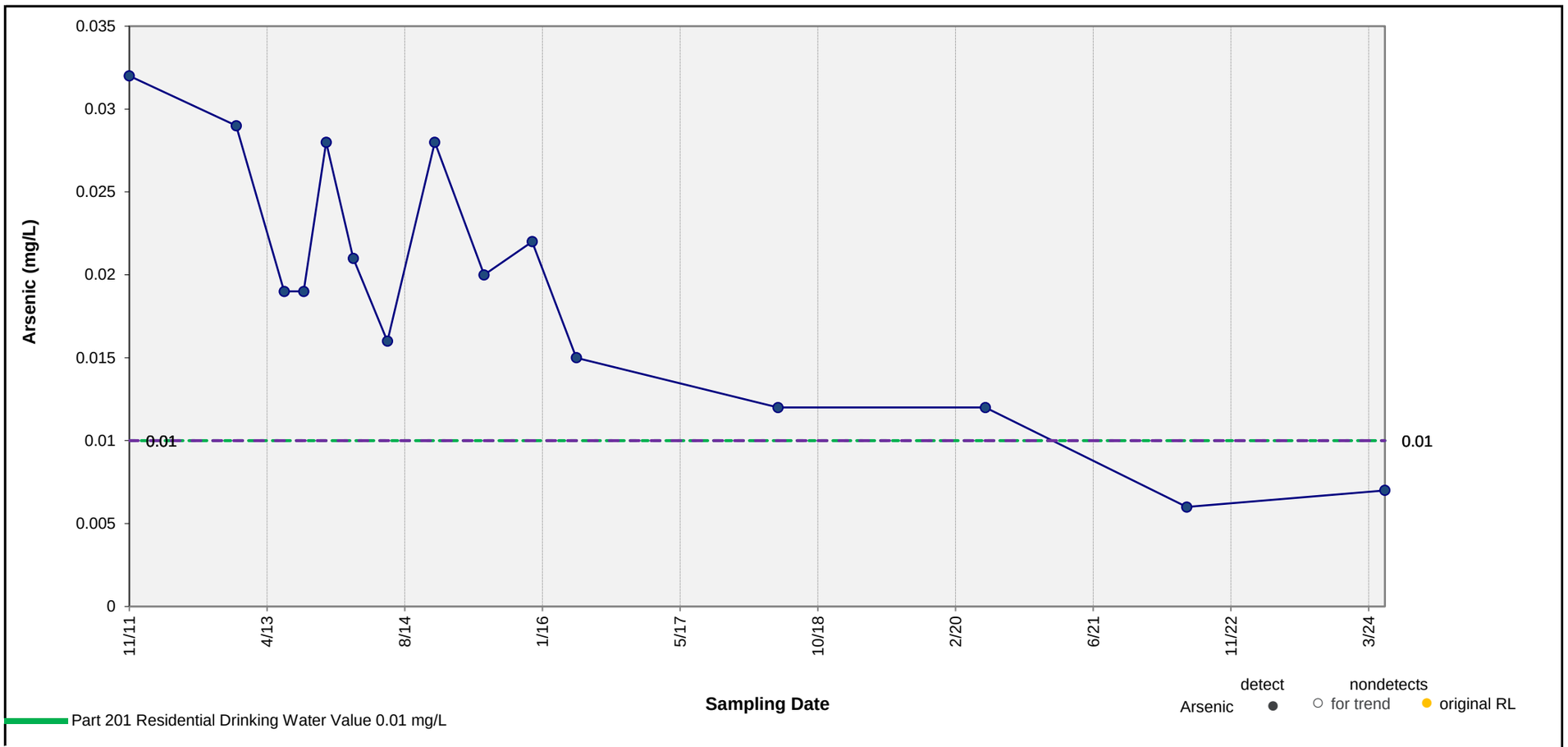
p value = <0.001 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Arsenic in Well MWBP-10-UST5-6

RACER Lansing

Figure H-102



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

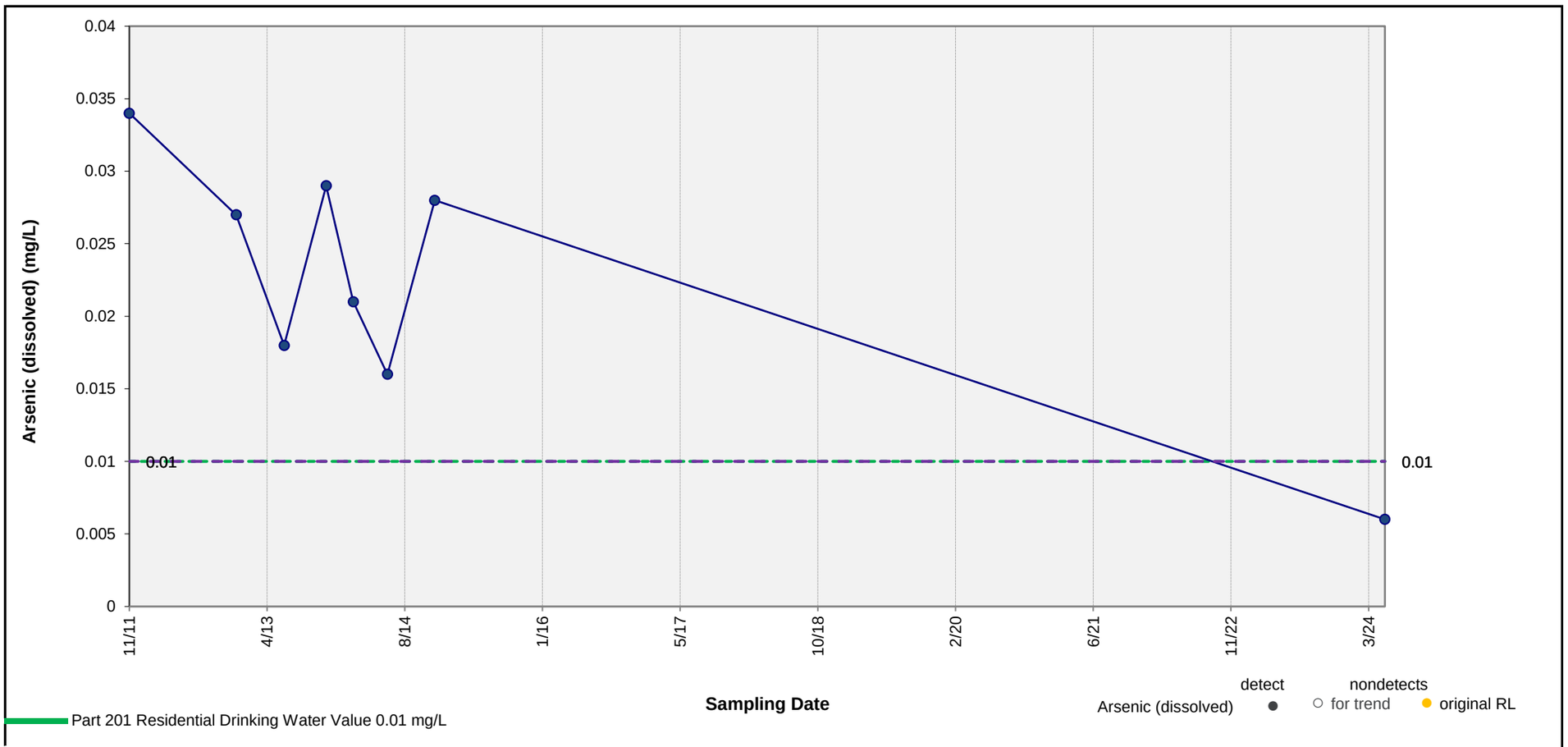
p value = <0.001 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Arsenic in Well MWBP-11-UST1-4

RACER Lansing

Figure H-103



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

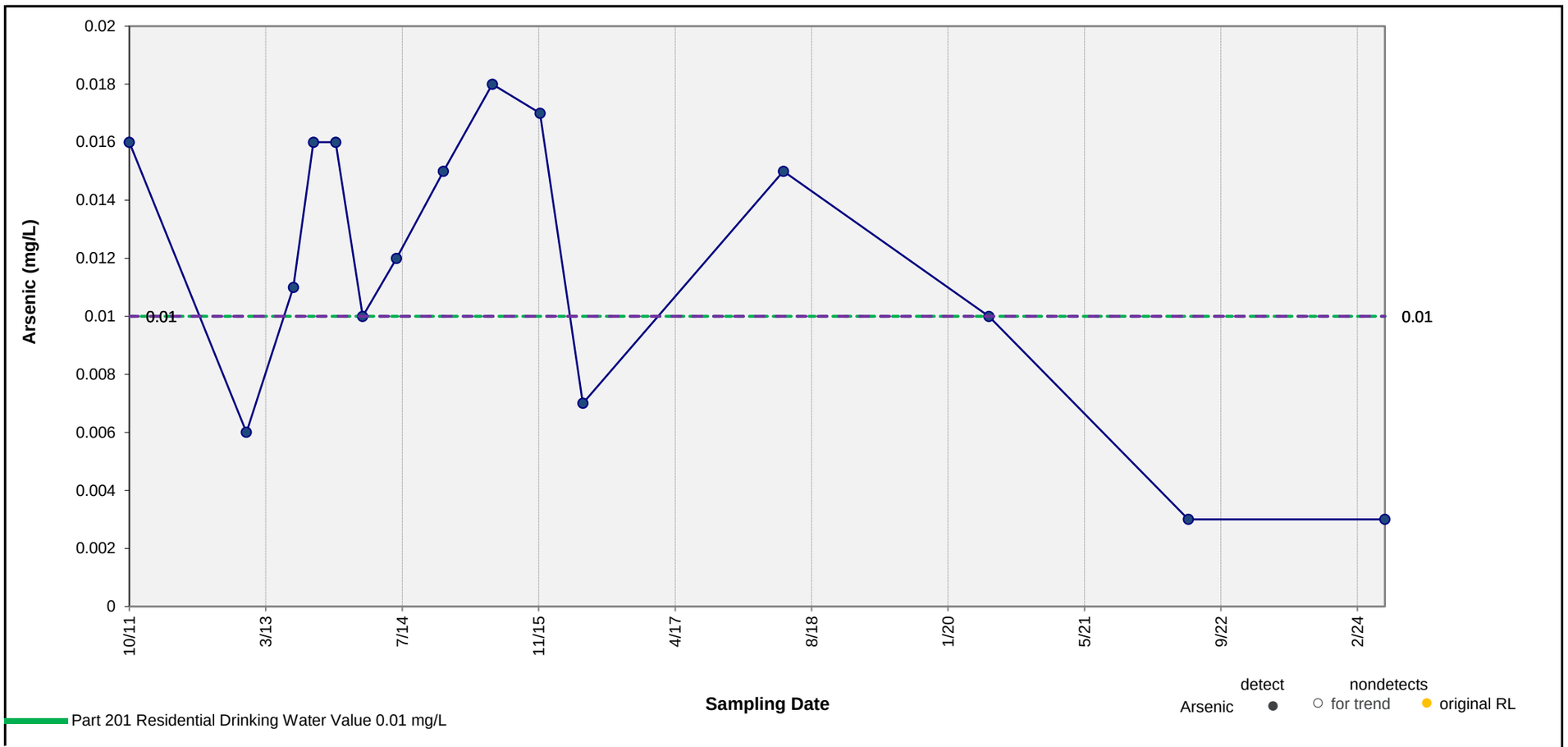
p value = 0.054 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Arsenic (dissolved) in Well MWBP-11-UST1-4

RACER Lansing

Figure H-104



Results of Mann-Kendall Test for Trend: **No Significant Trend**

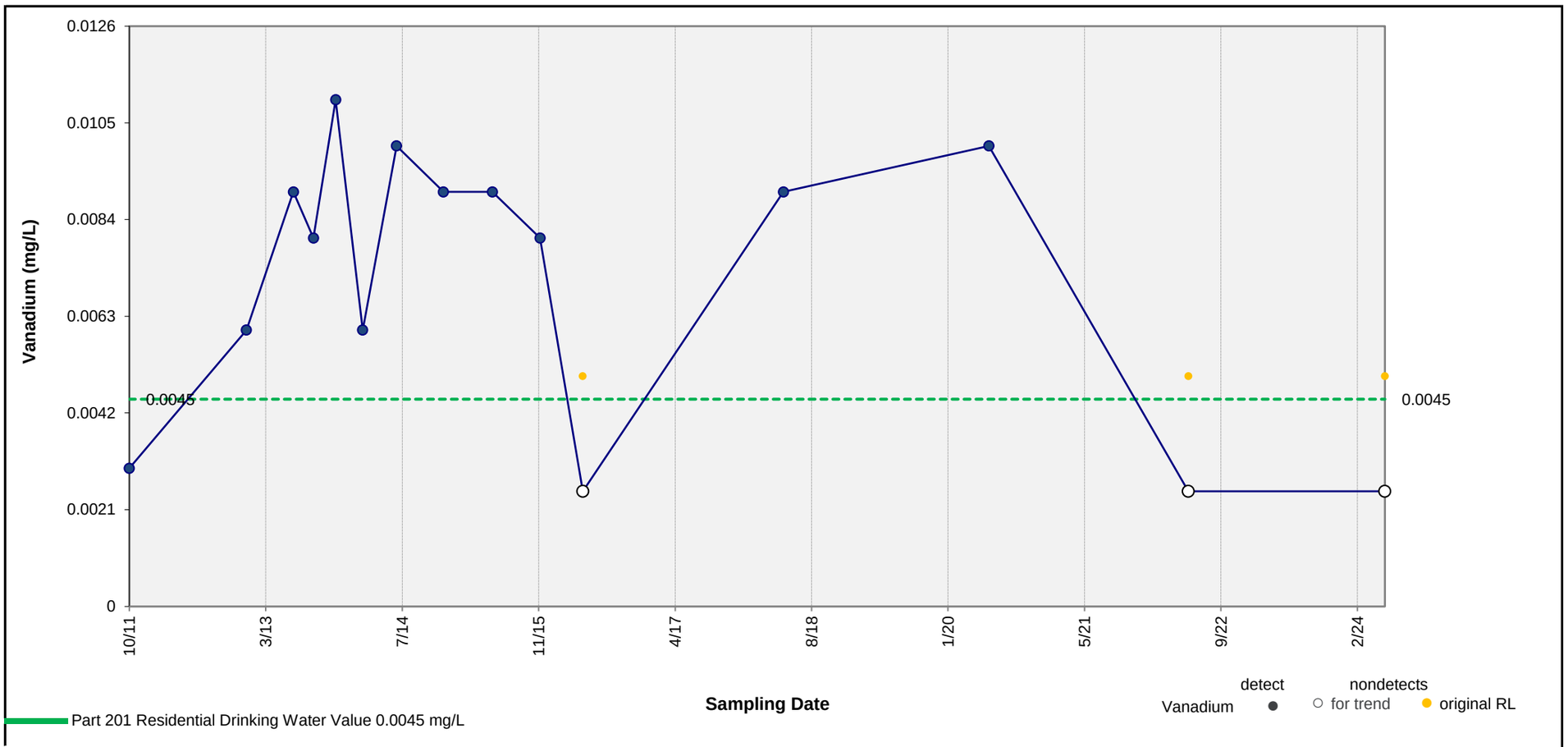
p value = 0.116 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Arsenic in Well MWBP-12-UST1-4

RACER Lansing

Figure H-105



Part 201 Groundwater Surface Water Interface criteria value of 0.027 mg/L is off-scale

Results of Mann-Kendall Test for Trend: **No Significant Trend**

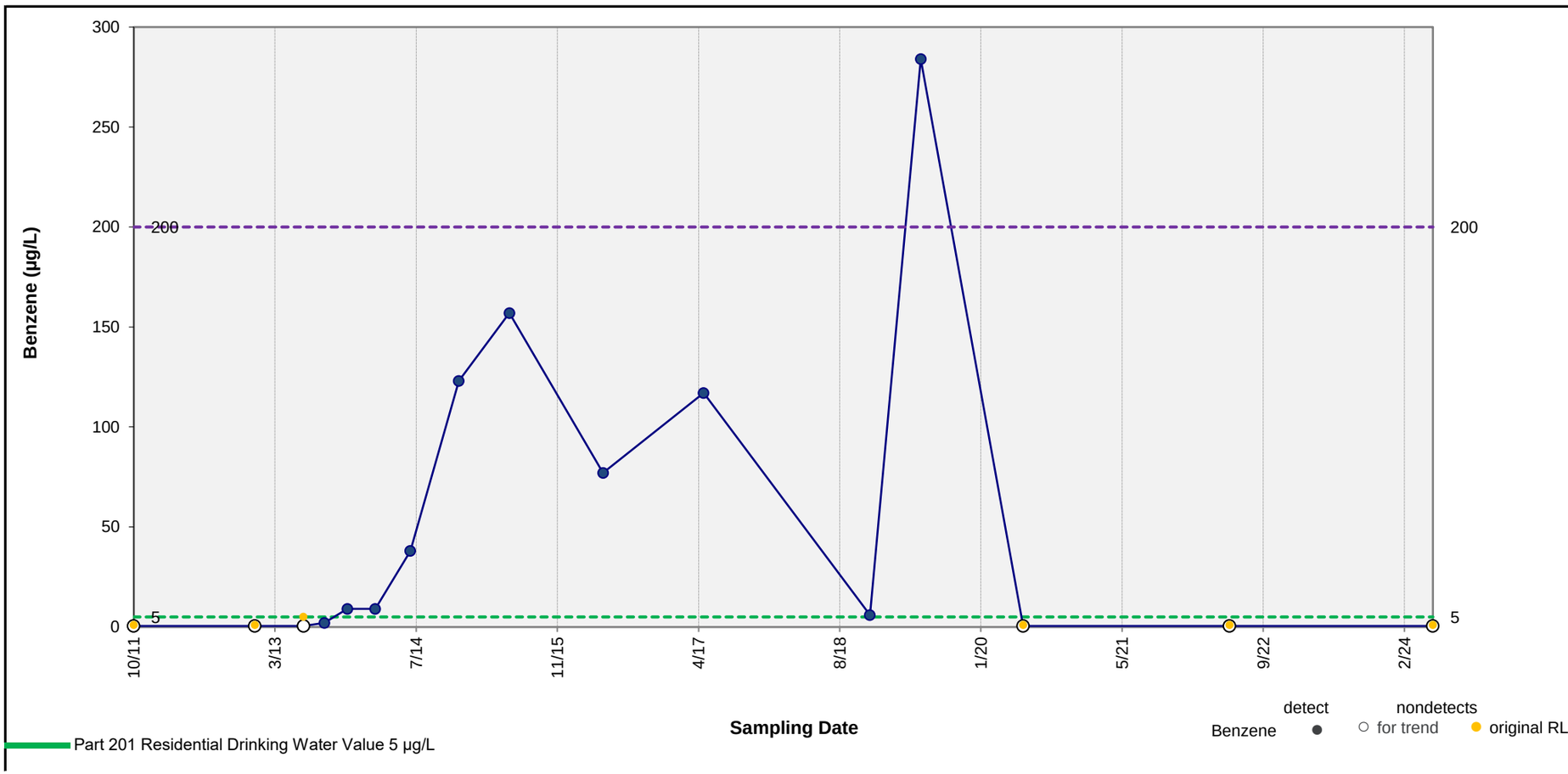
p value = 0.343 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Vanadium in Well MWBP-12-UST1-4

RACER Lansing

Figure H-106



Results of Mann-Kendall Test for Trend: **No Significant Trend**

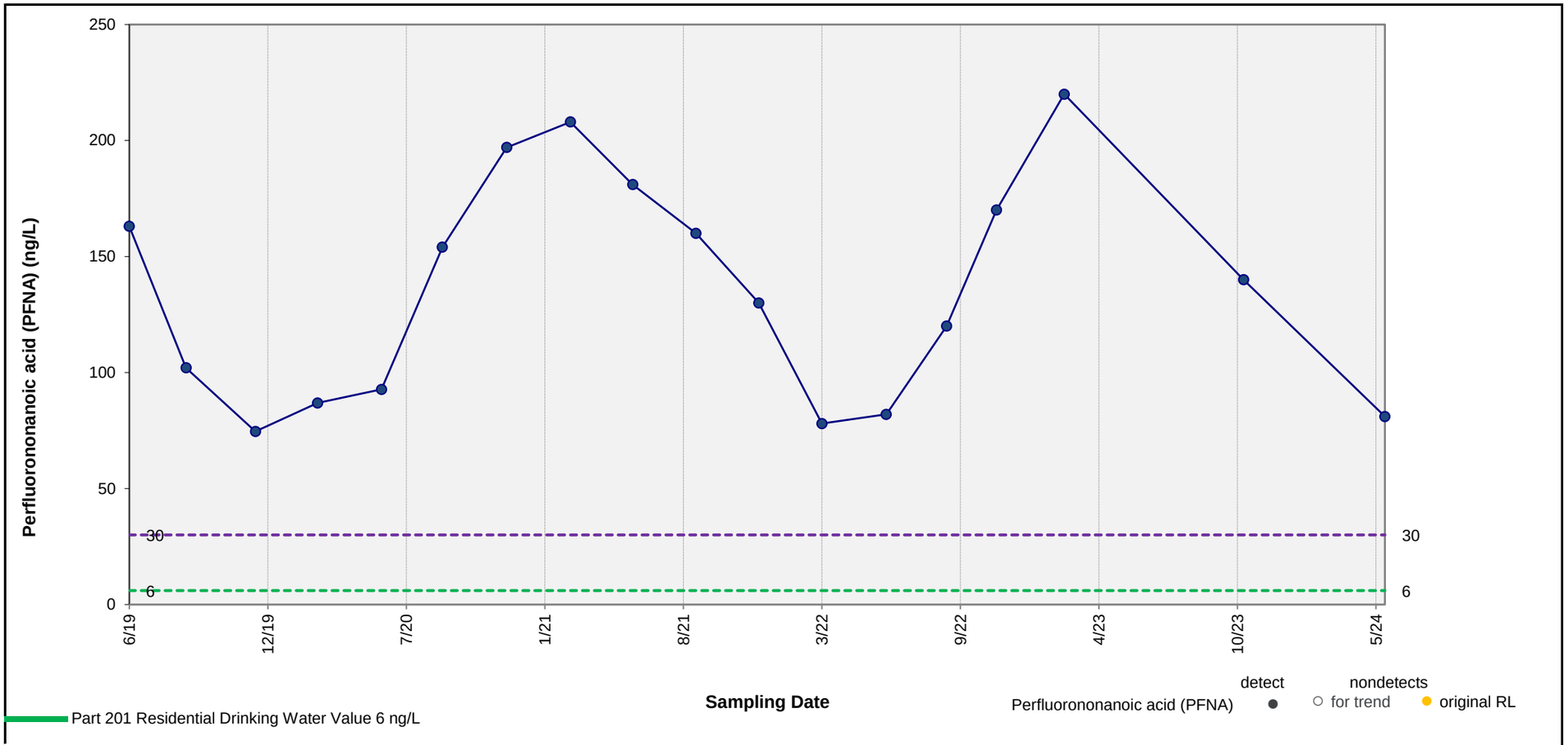
p value = 0.165 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Benzene in Well MWBP-12-UST1-4

RACER Lansing

Figure H-107



Results of Mann-Kendall Test for Trend: **No Significant Trend**

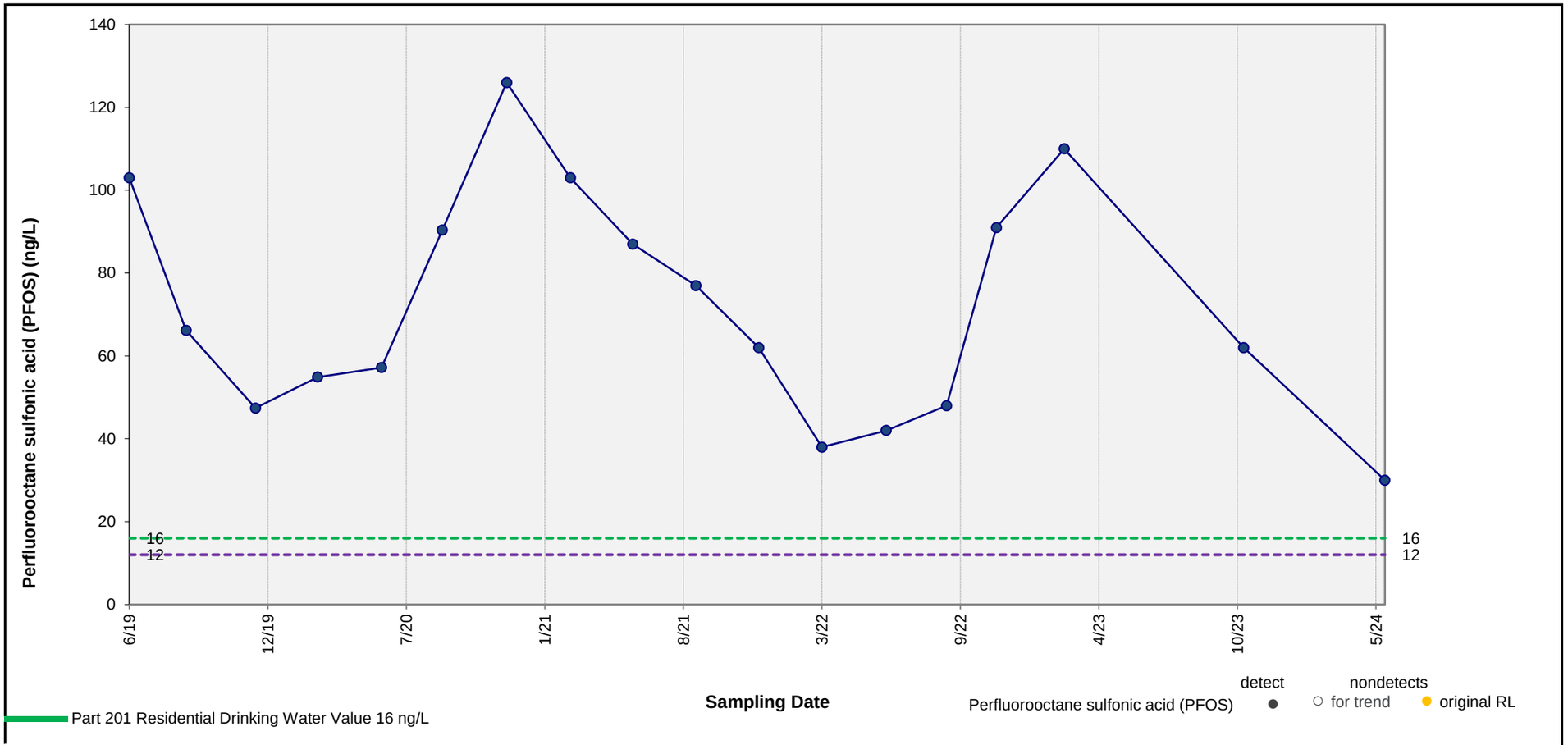
p value = 0.410 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Perfluorononanoic acid (PFNA) in Well P6-SB-07

RACER Lansing

Figure H-108



Results of Mann-Kendall Test for Trend: **No Significant Trend**

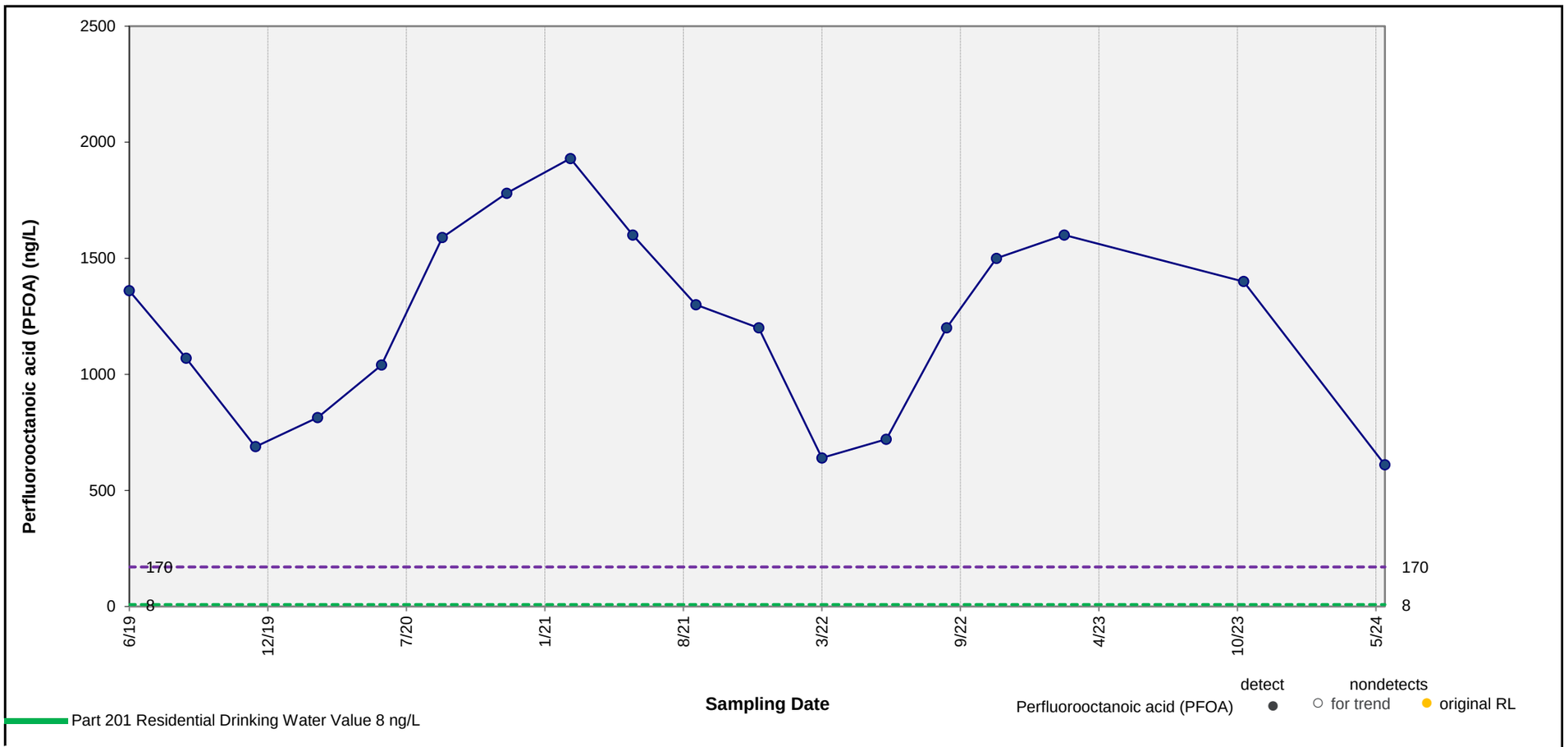
p value = 0.202 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Perfluorooctane sulfonic acid (PFOS) in Well P6-SB-07

RACER Lansing

Figure H-109



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.500 Note: p value < 0.1 indicates a statistically significant trend (90% confidence level).

ARCADIS

Concentration vs. Time Plot – Perfluorooctanoic acid (PFOA) in Well P6-SB-07

RACER Lansing

Figure H-110

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